Management of the California State Water Project

PETE WILSON, Governor STATE OF CALIFORNIA

DOUGLAS P. WHEELER, Secretary for Resources THE RESOURCES AGENCY

DAVID N. KENNEDY, Director DEPARTMENT OF WATER RESOURCES

Bulletin 132-97 February 1999

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Department of Water Resources

#### **Foreword**

In 1963, the Bulletin 132 series began and included a foreword by William E. Warne, the first director of the Department of Water Resources. Bulletin 132-97, *Management of the California State Water Project*, continues the annual series. Bulletin 132-97 updates water supply planning, construction, financing, management, and operation activities of the State Water Project. Appendix B contains data and computations used to determine the State Water Project contractors' Statement of Charges for 1998. Appendix B was previously published as an individual document.

The bulletin discusses significant events and issues that affect SWP management and operations. Some items may be discussed in more than one bulletin since departmental programs are based on either the water year, calendar year, or fiscal year. The bulletin covers the period from October 1, 1995, to June 30, 1997.

Bulletin 132-97 also discusses the new year's floods of December 1996 and January 1997; the 40th anniversary of the Department of Water Resources; water supply and delivery; continued construction of the Coastal Branch, Phase II; plans for the East Branch Extension; the tunnel intake reconstruction project at Silverwood Lake; reorganization of the divisions of Planning and Local Assistance; implementation of the Monterey Agreement; amendments to water contracts; and Delta planning and activities. There is also a memorial page for Clair A. Hill, a long-time supporter of California water issues.

David N. Kennedy Director

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Appendix A: Annual Financial Report (bound separately)

Appendix B: Data and Computations Used in Determining Water Charges for 1998

Appendix D: Costs of Recreation and Fish and Wildlife Enhancement (bound separately)

Appendix E: Water Operations in the Sacramento-San Joaquin Delta (bound separately)

Appendix F: San Joaquin Valley Post-Project Economic Impact (discontinued)

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#### **State of California**

Pete Wilson, Governor

#### The Resources Agency

Douglas P. Wheeler, Secretary for Resources

#### **Department of Water Resources**

David N. Kennedy, Director
Robert G. Potter, Chief Deputy Director
Stephen L. Kashiwada, Deputy Director
Raymond D. Hart, Deputy Director
L. Lucinda Chipponeri, Assistant Director for Legislation
Susan N. Weber, Chief Counsel

#### **State Water Project Analysis Office**

Donald R. Long, Chief

#### **California Water Commission**

The California Water Commission serves as a policy advisory body to the Director of Water Resources on all California water resources matters. The nine-member citizen commission provides a water resources forum for the people of the State, acts as a liaison between the legislative and executive branches of State Government, and coordinates federal, State, and local water resources efforts.

Daniel F. Kriege, Chair, Capitola Stanley M. Barnes, Vice-Chair, Visalia

Donald C. Cecil, Willows George Gowgani, San Luis Obispo Homer Lundberg, Richfield Michael Madigan, San Diego Martin A. Matich, San Bernardino Sayre Miller, Clovis

> Executive Officer Raymond E. Barsch

## Acknowledgments

Management of the California State Water Project, an annual publication of the State Water Project Analysis Office, was developed with contributions from staff members of the State Water Project Analysis Office as well as from individuals throughout the Department of Water Resources.

#### **State Water Project Analysis Office**

Donald R. Long, Chief Melvia Davis Laura Nelson Maureen Reed Darlessia Worthen

#### Water Contracts Negotiation and Administration

Dan Flory

#### **Power Contracts Branch**

Dan Herdocia, Chief Jennifer Bingaman

Power Contracts Management and Off-Aqueduct Projects Section Vacant, Chief Stuart Chan Linda Quok

Power and Transmission Contracts Section

Michael Werner, Chief

Tony Lam

Thomas McGivney

#### **Project Cost Branch**

Jess Cason, Chief Carolyn Allen

Cost Allocation and Repayment

Section

Pedro Villalobos, Chief

Nena Anyimi Teresa Clausen Spring Koyama Barry Mahoney Nancy Tagupa Pamela Tom Mike Torabian Shahram Zarafshar

Financial Analysis and Future Facilities Section Dave Knock, Chief Jackie Bodkin

Lori Brown Do Thuc Nguyen

#### Project Power Planning Branch

Rick Ramirez, Chief Jessica Winn

Power Supply and Transmission

Planning Section Ron Shimizu, Chief Chi Thuy Doan Charlie Kearney Eddie Ledesma Sonny Punzalan Bhupinder Sandhu Jon Seehafer

Power Cost Allocation Section Richard Latteri, Chief

Alvin Eshe Gurdip Rehal

#### **Project Coordination**

Richard Lerseth

#### Nonproject Water Contracts Section and **Bulletin 132 Section**

Scott Jercich, Chief Robert Aldridge Maxine Jones-Yoakum

Bulletin 132 Section Nancy Pate, Chief Heather Hummel Kay Mogavero Therese Tynan

#### **SWP Water Rights Contracts Activities Section**

John Gage Jr., Chief Mike Anderson Jon Jones Edgar Najera

#### **Project Water Contracts Branch**

Tom Hanson, Chief Janet Davis-Matsumoto

Water Deliveries and Schedules Section Teresa Geimer, Chief Jamsheed Bahar Howard Lockard Paul Mendoza Kathleen Wright

Project Water Contracts Section

John Pacheco, Chief

Ken Bucher Norm Grundon Maureen Sergent Reza Zamanian Liaison and Special **Projects Section** Nancy Quan, Chief

Andrea Glasgow Haydeh Hakim-Edrissi Marie McLean



#### **Departmental Divisions and Offices**

Information, financial, and cost accounting data, or reviews of material provided by staff members of:

Executive Division

Stephen L. Kashiwada, Deputy Director

L. Lucinda Chipponeri, Assistant Director for Legislation

Division of Operations and Maintenance

Edward F. Huntley, Chief

Donald T. Kurosaka, Assistant to Division Chief

Rolland Williams Sr., Chief, Oroville Field Division

David V. Starks, Chief, Delta Field Division

H. Duane Knittel, Chief, San Luis Field Division

Glen A. Gordon, Chief, San Joaquin Field Division

Lonnie Long, Chief, Southern Field Division

Division of Engineering Leslie Harder, Chief

Division of Fiscal Services

Chester M. Winn, Chief

Division of Flood Management

George Qualley, Chief

Division of Land and Right of Way

Frank Conti, Chief

Division of Planning and Local Assistance

William Bennett, Chief

Naser J. Bateni, Chief, Northern District

Karl P. Winkler, Chief, Central District

Louis A. Beck, Chief, San Joaquin District

Charles R. White, Chief, Southern District

Division of Safety of Dams

Vernon H. Persson, Chief

Office of State Water Project Planning

Katherine F. Kelly, Chief

Office of Water Education

Anita Garcia-Fante, Chief

Environmental Services Office

Randall H. Brown, Chief

Office of Chief Counsel

Susan N. Weber, Chief Counsel



### Clair A. Hill 1909-1998

Clair A. Hill, an early proponent of water planning and management in California, died April 11, 1998, in Redding, California, at the age of 89. Mr. Hill was also known as the "Father of Whiskeytown Lake" and "Mr. Water of Northern California." Mr. Hill, a third-generation Californian, was born and grew up in Redding. He studied forestry at Oregon State University and worked in Northern California logging camps during the summers. He graduated from Stanford in 1934 with a degree in civil engineering. Mr. Hill worked as an engineer for Standard Oil Company in San Francisco and later for the California Division of Highways (now Caltrans). He returned to Redding in



1938 to become a deputy county surveyor and opened his own surveying office during this period.

In 1941, Mr. Hill joined the U.S. Army. He served as an officer in a bomb disposal and ordinance unit in Alaska's Aleutian Islands during World War II.

After the war, Mr. Hill returned to Redding and reorganized Clair A. Hill and Associates as an engineering firm. By 1950, there were three engineers, an architect, and two survey crews. The firm's responsibility and reputation grew, with offices in California and Alaska. His association with CH2M began in 1956 during an Oregon housing development project. The association continued for 15 years until 1971 when the companies merged and became CH2MHILL. One early collaboration of the two companies was the Lake Tahoe Advanced Wastewater Treatment Facility, the first of its kind in North America. The Lake Tahoe project received national acclaim for its innovative wastewater treatment methods. Today, Mr. Hill's original engineering company with 16 employees is part of an organization of 4,000 employees in about 50 offices worldwide.

Mr. Hill retired in 1974 but remained active as a consultant and adviser to CH2MHILL until recently.

Mr. Hill took an active interest in government and community affairs. He was known as a major contributor to California's water-supply planning and management. His participation dated to the earliest days of statewide water planning. His lobbying for water-supply issues led to the damming of Clear Creek and the creation of Whiskeytown Lake. He encouraged the U.S. Bureau of Reclamation to change its plan for the Central Valley Project and include Whiskeytown Dam as a means of providing more irrigation water for farmland in the Sacramento Valley. In 1988, Congress renamed the dam the Clair A. Hill Whiskeytown Dam, a rare honor for a living person.

Mr. Hill was part of the statewide Water Resources Investigations that produced the first state water plan, Bulletin No. 3, *The California Water Plan*, in 1957. He served on the California Water Commission from 1949 until 1996, including 18 years as its chair. He was the Commission's only honorary life member. Last year, he was one of eight civil engineers in the country to receive Honorary Lifetime Membership in the American Society of Civil Engineers. He was the first recipient of the Association of California Water Agencies' Lifetime Achievement Award. The National Academy of Engineering elected him to membership in 1992.

Philip G. Hall, CH2MHILL's board chairman, said "It was my pleasure to work for and with Clair during my years in California. During that time, and even more so as time has passed, I've come to appreciate that there is probably no one who has contributed as much to the water infrastructure and agricultural development of California as Clair A. Hill. Anyone who draws a glass of water in California today, or enjoys fresh produce from the Central Valley, has Clair Hill in part to thank for those blessings."

## Introduction The State Water Project



A view of Antelope Lake

alifornia's diverse climate and geography range from desert to alpine to subtropical. It contains both the highest and lowest elevations in the coterminous United States—within 85 miles of each other. In a typical year, some areas receive as little as 2 inches of rain while others receive more than 100 inches. These contrasts complicate the water needs and supply of water—perhaps the most vital resource of any land.

Regardless of the amount of rainfall, people settled in all areas of the State. Since the earliest settlers, Californians have faced the problem of how best to conserve, control, and deliver water. Remains of aqueducts, canals, and dams are still found near some of California's missions. The first recorded aqueduct was 6 miles long; it was built in 1770 to serve the San Diego mission. In the early twentieth century, several cities—San Francisco and Los Angeles among them—built aqueducts to bring water from the Sierra Nevada.

In 1951, after many years of discussion and study, the Legislature authorized construction of a water storage and supply system to capture and store runoff in Northern California and deliver it to areas of need throughout the State. Eight years later, the Legislature passed the Burns-Porter Act, which provided the mechanism for obtaining funds necessary to construct the initial facilities. In 1960, California voters approved an issue of \$1.75 billion in general obligation bonds, as authorized in the act, thereby obtaining funds to build the State Water Project. The first water was delivered in 1962.

Today the SWP, managed by the Department of Water Resources, is the largest state-built, multipurpose water project in the country. The SWP was designed and built to deliver water, control floods, generate power, provide recreational opportunities, and enhance habitats for fish and wildlife. Approximately 19 million of California's 32 million residents receive at least part of their water from the SWP. SWP water irrigates approximately 600,000 acres of farmland.

#### Water Delivery Facilities

The SWP depends on a complex system of dams, reservoirs, power plants, pumping plants, canals, and aqueducts to deliver water. Although initial transportation facilities were essentially completed in 1973, other facilities have been built since then, and still others are under construction or are scheduled to be built as needed (Figure I-1). The SWP facilities include 28 dams and reservoirs, 22 pumping and generating plants, and (with scheduled completion of the Coastal Branch, Phase II, in July 1997) approximately 660 miles of aqueducts.

Facilities were designed and built to meet demands for water through 1990; these demands were projected to be about 4.0 million acre-feet. Actual demand, however, has not developed as projected, owing to circumstances such as slower population growth, changes in local use, local water conservation programs, and conjunctive-use programs. The most SWP entitlement water delivered to date was about 2.8 million acre-feet in 1989.

#### **Project Design**

The water stored and delivered by the SWP conservation and transportation facilities originates from rainfall and snowmelt runoff in Northern and Central California watersheds, where most of the State's precipitation occurs. Agencies or districts in the Southern California, Central Coastal, San Joaquin Valley, South Bay, North Bay, and Upper Feather River areas receive water from the SWP.

The State Water Project Introduction

Figure I-1
Names and Locations of Primary Water Delivery Facilities
Current and Projected, June 30, 1997



Three small reservoirs—Lake Davis, Frenchman Lake, and Antelope Lake—are the northernmost SWP facilities. Situated on Feather River tributaries in Plumas County, these lakes are used primarily for recreation; they also provide water to the city of Portola and local agencies that have water rights agreements with the Department.

Downstream from these three lakes is Lake Oroville, the keystone of the SWP. Lake Oroville conserves water from the Feather River watershed. Created by Oroville Dam, the tallest earthfill dam in the Western Hemisphere, Lake Oroville is the project's largest storage facility, with a capacity of about 3.5 million acre-feet. (An acre-foot consists of about 326,000 gallons.)

Releases from Lake Oroville flow down the Feather River to the Sacramento River, which drains the northern portion of California's great Central Valley. The Sacramento River flows into the Sacramento-San Joaquin Delta—738,000 acres of land interlaced with channels that receive runoff from 40 percent of the State's land area. The SWP, along with the federal Central Valley Project and local agencies, diverts water from the Delta.

From the northern Delta, Barker Slough Pumping Plant diverts water for delivery to Napa and Solano counties through the North Bay Aqueduct, completed in 1988. Near Byron, in the southern Delta, the SWP diverts water into Clifton Court Forebay for delivery south of the Delta. The Banks Pumping Plant lifts water from Clifton Court Forebay into Bethany Reservoir; from Bethany Reservoir, the South Bay Pumping Plant lifts water into the South Bay Aqueduct, supplying Alameda and Santa Clara counties. The South Bay Aqueduct provided initial deliveries in 1962 and has been fully operational since 1965.

Most of the water delivered to Bethany Reservoir from Banks Pumping Plant flows into the California Aqueduct. This 444-mile-long main aqueduct conveys water to the primarily agricultural lands of the San Joaquin Valley and the primarily urban regions of Southern California.

The California Aqueduct winds along the west side of the San Joaquin Valley. It transports water to O'Neill Forebay, Gianelli Pumping-Generating Plant, and San Luis Reservoir. The San Luis Reservoir is jointly owned by the Department and the U.S. Bureau of Reclamation, which operates the Central Valley Project. San Luis Reservoir has a storage capacity of more than 2 million acre-feet; the Department's share of gross storage in the reservoir is about 1,062,000 acre-feet.

SWP water not stored in San Luis Reservoir, and water eventually released from San Luis, continues to flow south through the San Luis Canal, a portion of the California Aqueduct jointly owned by the Department and USBR.

As the water flows through the San Joaquin Valley, it is raised over 1,000 feet by four pumping plants—Dos Amigos, Buena Vista, Teerink, and Chrisman—before reaching the foot of the Tehachapi Mountains.

In the San Joaquin Valley near Kettleman City, the existing Coastal Branch Aqueduct stub serves agricultural areas west of the California Aqueduct. This branch is being extended to serve municipal and industrial water users in San Luis Obispo and Santa Barbara counties. The extended Coastal Branch is scheduled to be completed in July 1997.

The remaining water conveyed by the California Aqueduct is delivered to Southern California, where about two-thirds of California's population lives. Before that water can be delivered, it must first cross the Tehachapi Mountains. Pumps at Edmonston Pumping Plant, situated at the foot of the mountains, raise the water 1,926 feet—the highest single lift of any pumping plant in the world. Then the water enters 8.5 miles of tunnels and siphons as it flows into the Antelope Valley, where the California Aqueduct divides into two branches, the East Branch and the West Branch.

The East Branch of the California Aqueduct carries water through the Antelope Valley into Silverwood Lake in the San Bernardino Mountains. From Silverwood Lake, the water flows through the San Bernardino Tunnel into the Devil Canyon Powerplant. The water continues down the East Branch to Lake Perris, the southernmost SWP reservoir, which is also the project's most popular destination for recreationists.

Introduction The State Water Project

Water in the West Branch of the California Aqueduct flows through the Warne Powerplant into Pyramid Lake in Los Angeles County. From there it flows through the Angeles Tunnel and Castaic Powerplant into Elderberry Forebay and Castaic Lake, terminus of the West Branch.

The energy needed to operate the SWP, the single largest user of electrical power in California, comes from a combination of its own hydroelectric and coal-fired generation plants and power purchased from other utilities. The project's eight hydroelectric power plants, which include three pumping-generating plants, and one coal-fired plant produce enough electricity in a normal year to supply about two-thirds of the project's necessary power.

Tables I-1 through I-5 present statistical information about primary reservoirs, primary dams, pumping plants, power plants, and aqueducts. Additional information regarding operation of the plants under full development can be found in Chapter 11.

Table I-1
Physical Characteristics of Primary
Storage Facilities

	Gross	Surface	
	Capacity	Area	Shoreline
Facility	(Acre-feet)	(Acres)	(Miles)
	00.000	200	4.5
Antelope Lake	22,600	930	15
Frenchman Lake	55,500	1,580	21
Lake Davis	84,400		32
Lake Oroville	3,537,600	15,800	167
Thermalito Forebay	11,800	630	10
Thermalito Afterbay	57,000	,	26
Thermalito Diversion Pool	13,400	320	10
Clifton Court Forebay	31,300	2,180	8
Bethany Reservoir	5,100		6
Lake Del Valle	77,100		16
San Luis Reservoir	2,027,800	12,520	65
SWP storage, 1,062,183 AF	2,02.,000	.2,020	00
O'Neill Forebay	56,400	2,700	12
SWP storage, 29,500 AF			
Los Banos Reservoir	34,600	620	12
Quail Lake	7,600	290	3
Pyramid Lake	171,200	1,300	21
Elderberry Forebay	32,500	500	7
Castaic Lake	323,700		29
Silverwood Lake	75,000	980	13
Lake Perris	131,500	2,320	10
Lake i Cilis	131,300	2,320	10

#### **Additional Construction**

The initial facilities of the SWP were designed and constructed to meet projected demands through about

1990. Additional SWP facilities were tentatively scheduled to meet increased demands beyond that date. It was also anticipated that population growth in delivery service areas and areas of water supply origin would influence the final schedule for the additional SWP facilities. Increased costs, unrealized population growth, and increased non-SWP demands for limited water supplies delayed the construction schedule for some planned additional facilities.

In response to changes in water management policy, the Department continues to reassess plans for the additional facilities that will incorporate increased environmental safeguards while also increasing the SWP delivery yield. Developing those plans involves the time-consuming process of finding technically suitable projects and satisfying the many complex environmental procedures, laws, and regulations.

In the late 1980s, the Department began planning the offstream storage complex Los Banos Grandes in Merced County. The Department also developed alternative methods of storing water, including the Kern Water Bank, a conjunctive-use groundwater storage facility. Initial planning for these projects was completed. However, environmental concerns about the Sacramento-San Joaquin Delta and its effect on water management, along with concerns about how best to transfer water across the Delta, suspended additional planning for Los Banos Grandes until those concerns have been addressed.

The signing of the Monterey Agreement in December 1994 set the principles for transferring the Kern Fan Element of the Kern Water Bank from the Department to two agricultural contractors, Kern County Water Agency and Dudley Ridge Water District. The transfer occurred August 9, 1996.

The Department continues to plan, design, and construct transportation and power-producing facilities for the SWP. Mojave Siphon Powerplant was completed in 1996. The enlarged Devil Canyon Powerplant and the new Devil Canyon Powerplant Second Afterbay became operational in 1995. In addition, the second phase of the Coastal Branch of the California Aqueduct should be completed in July 1998. Upon completion, the Coastal Branch can transport about 50,000 acre-feet annually to San Luis Obispo and Santa Barbara counties.

Table I-2
Physical Characteristics of Primary Dams

Facility	Crest Elevation (Feet)	Structural Height (Feet)	Crest Length (Feet)	Structural Volume (Thousand Cubic Yards)
Antelope	5,025	120	1,320	380
Frenchman	5,607	139	720	537
Grizzly Valley	5,785	132	800	253
Oroville	922	770	6,920	80,000
Thermalito Diversion	233	143	1,300	154
Thermalito Forebay	231	91	15,900	1,840
Thermalito Afterbay	142	39	42,000	5,020
Clifton Court Forebay	14	30	36,500	2,440
Bethany	250	121	3,940	1,400
Del Valle	773	235	880	4,150
Sisk	554	385	18,600	77,645
O'Neill	233	88	14,350	3,000
Los Banos Detention	384	167	1,370	2,100
Pyramid	2,606	400	1,090	6,000
Elderberry Forebay	1,550	200	1,990	6,000
Castaic	1,535	425	4,900	46,000
Cedar Springs	3,378	249	2,230	7,600
Perris	1,600	128	11,600	20,000

Table I-3
Pumping Plant Characteristics

Facility	Number of Units	Normal Static Head (Feet)	Total Flow at Design Head (cfs)	Total Motor Rating (hp)
Thermalito Hyatt Barker Slough Cordelia Banks	3 (p-g)	85-101	9,120	120,000
	3 (p-g)	410-660	5,610	519,000
	9	95-120	228	4,800
	11	104-439	138	5,600
	11	236-252	10,670	333,000
South Bay Del Valle Gianelli Dos Amigos Las Perillas	9	566	330	27,750
	4	0-38	120	1,000
	8 (p-g)	99-327	11,000	504,000
	6	107-125	15,450	240,000
	6	55	461	4,050
Badger Hill Devil's Den (a Bluestone (a Polonio Pass (a Buena Vista (a	6 6 6 10	151 521 481 533 205	454 134 134 134 5,405	11,750 10,500 10,500 10,500 144,500
Teerink (a	9	233	5,445	150,000
Chrisman (a	9	518	4,995	330,000
Edmonston (a	14	1,926	4,480	1,120,000
So	8	231	3,252	93,800
Pearblossom	9	539-546	2,575	203,200
a) These plants have one unit in reserve.	9	559 <b>-</b> 540	2,375	203,20

The State Water Project Introduction

Table I-4
Power Plant Characteristics, by Type and Facility

		Normal		
		Static	Total Flow	Total
	Number of	Head	at Design	Generator
Type and Facility	Units	(Feet)	Head (cfs)	Rating (kw)
Hydro				
Thermalito				
Diversion Dam	1	63-77	615	3,000
Thermalito	4 (3 p-g)	85-101	17,400	115,000
Hyatt	6 (3 p-g)	410-675	16,950	644,250
Gianelli	8 p-g	99-327	16,960	424,000
SWP share				222,100
Alamo	1	115-141	1,740	17,000
Warne	2	719-739	1,564	74,300
Mojave Siphon	3	95-146	2,880	32,400
Devil Canyon	4	1,406	2,940	280,000
Thermal				
Reid Gardner, Unit 4	1 (a			275,000
SWP ownership share				169,500
a) Life of the plant is expected	to extend throug	th 2013		
a) Life of the plant is expected	io eviena inioné	JII 2013.		

Table I-5
Total Miles of Aqueducts

Facility	Channel and Reservoir	Canal	Pipeline	Tunnel	Total			
North Bay Aqueduct	0.0	0.0	27.4	0.0	27.4			
South Bay Aqueduct	0.0	8.4	32.9	1.6	42.9			
Subtotal	0.0	8.4	60.3	1.6	70.3			
California Aqueduct, Main Line								
Delta to O'Neill Forebay	1.4	67.0	0.0	0.0	68.4			
O'Neill Forebay to Kettleman City	2.2	103.5	0.0	0.0	105.7			
Kettleman City to Edmonston Pumping Plant Edmonston Pumping Plant	0.0	120.9	0.0	0.0	120.9			
to Tehachapi Afterbay Tehachapi Afterbay to	0.0	0.2	2.5	7.9	10.6			
Lake Perris	2.9	93.4	38.3	3.8	138.4			
Subtotal	6.5	385.0	40.8	11.7	444.0			
California Aqueduct Branches								
West Branch	9.2	9.1	6.4	7.2	31.9			
Coastal Branch (a	0.0	15.0	97.9	2.7	115.6			
Subtotal	9.2	24.1	104.3	9.9	147.5			
Total	15.7	417.5	205.4	23.2	661.8			
a) Last section of pipe was laid on 4/28/97; Coastal Branch, Phase II, is scheduled to begin operation in July 1997.								

#### **Methods of Financing**

Project facilities have been constructed with four general types of financing: general obligation bonds and tideland oil revenues (under the Burns-Porter Act—approved by the Legislature in 1959; and the bond issue approved by voters in 1960); revenue bonds; and capital resources. Repayment of these funds and the operations, maintenance, power, and replacement costs associated with water supply are paid by the 29 agencies or districts that have long-term contracts with the Department for SWP water; those costs are repaid as they are incurred.

The contracts initially provided for a combined maximum annual entitlement of 4,230,000 acre-feet of water supply. As a result of contract amendments in the 1980s and the Monterey Agreement, the current combined maximum annual entitlement totals 4,172,786 acre-feet. The contracts are in effect for the longest of the following periods: (1) the project repayment period, which extends to the year 2035; (2) 75 years from the date of the contract; or (3) the period ending with the latest maturity date of any

bond used to finance the construction costs of project facilities.

#### **Long-Term Contracting Agencies**

From 1963 through 1967, 32 agencies or districts signed long-term water supply contracts with the Department. However, in 1965, the city of West Covina was annexed to the Metropolitan Water District of Southern California, and in 1981 Hacienda Water District was assigned to Tulare Lake Basin Water Storage District. On January 1, 1992, Castaic Lake Water Agency assumed all rights and obligations granted to Devil's Den Water District according to its long-term supply contract. The 29 agencies or districts that now have long-term contracts with the Department are listed in Figure I-2 and Table I-6.

Figure I-2 shows the location of each contracting agency or district and lists the first year of SWP delivery service for each. Table I-6 presents information about each contracting agency.

Figure I-2
Names, Locations, and First Year of Service of Long-Term Contracting Agencies, June 30, 1997

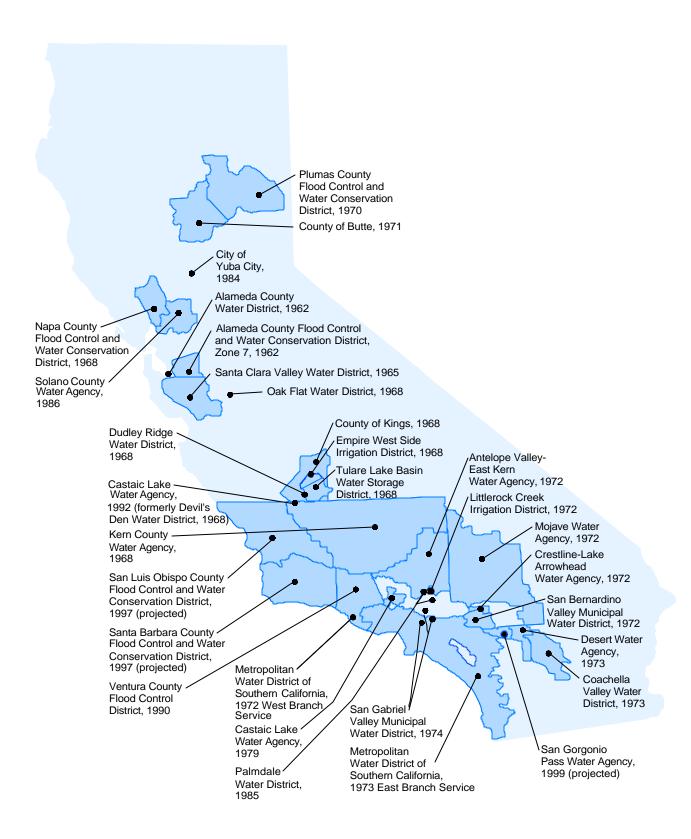


Table I-6 Long-Term Water Supply Contracting Agencies, by Area

	Cumulative Deliveries through December 31, 1996	Maximum Annual Entitlement	Payments through December 31, 1996	Gross Area as of July 1, 1997	Assessed Valuation 1996-97	Estimated Population
Contracting Agency	(Acre-Feet) (a	(Acre-Feet)	(Dollars)	(Acres)	(Dollars) (b	July 1, 1996
Upper Feather River Area						
City of Yuba City	6,204	9,600	1,522,267	5,107	1,126,662,000	34,350
County of Butte	7,884	27,500	449,704	1,069,000	6,239,500,000	172,600
Plumas County Flood Control and Water Conservation District	10,241	2.700	897,361	1,676,056 (c	1,973,575,825 (c	21,200
Subtotal	24,329	39,800	2,869,332	2,750,163	9,339,737,825	228,150
	,===		_,,,,,,,	_,, ,,,,,,	0,000,000,000	,
North Bay Area						
Napa County Flood Control and	100.015	05.000	04.050.405	500.000	0.005.000.400	400.000
Water Conservation District Solano County Water Agency	162,915 216,635	25,000 42.000	34,352,485 40.958.756	508,000 537,600	9,825,260,469 18,080,317,459	120,828 377,560
Subtotal	379,550	67,000	75,311,241	1,045,600	27,905,577,928	498,388
Cubiciai	070,000	07,000	70,011,241	1,040,000	27,000,077,020	400,000
South Bay Area						
Alameda County Flood Control						
and Water Conservation District-Zone 7	635,142	46,000	47,653,745	272,000	12,592,234,275	161,600
Alameda County Water District	687,503	42,000	52,153,900	64,640	22,195,107,000	296,000
Santa Clara Valley Water District	2.605.532	100.000	168.425.911	849.000	115.100.000.000	1.653.000
Subtotal	3,928,177	188,000	268,233,556	1,185,640	149,887,341,275	2,110,600
San Joaquin Valley Area	67 000	4.000	0.070.447	002 200	2.052.722.500	440.004
County of Kings Castaic Lake Water Agency	67,822 344,899	4,000	2,372,447	893,300	3,953,722,580 10,872,299,000	118,204
Dudley Ridge Water District	1.411.439	57,700	38,129,615	29.330	34,425,510	36
Empire West Side Irrigation District	88,875	3,000	2,078,998	7,400	(e	50
Kern County Water Agency	21,818,265	1,153,400	889,957,494	5,161,000	33,768,700,000	603,300
Oak Flat Water District	145,292	5,700	3,080,019	4,500	(e	10
Tulare Lake Basin Water Storage District	3,042,468	118,500	77,274,257	189,519	152,288,305	120
Subtotal	26,919,060	1,342,300	1,012,892,830	6,285,049	48,781,435,395	721,720
0						
Central Coastal Area San Luis Obispo County Flood						
Control and Water Conservation						
District		25,000	20,860,109	2,131,300	14,347,448,466	232,428
Santa Barbara County Flood Control						
and Water Conservation District	1,240	45,486	50,044,978	1,775,296	10,296,310,227	394,580
Subtotal	1,240	70,486	70,905,087	3,906,596	24,643,758,693	627,008
Southern California Area						
Antelope Valley-East Kern Water						
Agency	914,916	138,400	198,727,337	1,525,029	11,670,354,723	230,000
Castaic Lake Water Agency (d	259,983	54,200	93,107,451	133,700	10,872,299,000	150,250
Coachella Valley Water District	381,289	23,100	88,417,420	637,600	11,132,616,000	200,000 25,000
Crestline-Lake Arrowhead Water Agency Desert Water Agency	30,901 615,806	5,800 38,100	12,561,383 117,682,985	55,100 208,800	1,500,527,807 4,188,725,000	62,000
Littlerock Creek Irrigation District	12,803	2,300	3,477,099	10,000	106,085,538	2,900
Metropolitan Water District of	,	·		·	, ,	,
Southern California	15,113,300	2,011,500	4,212,333,139	3,289,593 (f	671,699,559,000 (f	14,500,000 (f
Mojave Water Agency	132,986	50,800	87,799,372	3,160,400	13,264,223	333,000
Palmdale Water District San Bernardino Valley Municipal	71,943	17,300	26,553,023	73,900	1,956,651,000	90,000
Water District	287,203	102,600	214,006,226	210,000	14,400,000,000	600,000
San Gabriel Valley Municipal Water	_5.,_50		,,	0,000	, , ,	223,000
District	190,276	28,800	67,257,377	17,865	8,664,992,778	210,000
San Gorgonio Pass Water Agency		17,300	31,352,462	140,600	1,945,425,320	44,600
Ventura County Flood Control District Subtotal	5,824	20,000	25,502,385	308,252	759,837,301,346	457,000 16,004,750
Subiolai	18,017,230	2,510,200	5,178,777,659	9,770,839	1,497,987,801,735	16,904,750
Total, State Water Project	49,269,586	4,217,786	6,608,989,705	24,943,887 (g	1,758,545,652,851 (g	21,090,616 (g
Total, State of California	,	. ,		100,314,000	1,876,326,000,000 (h	32,383,000 (h
	_	.,=,	-,,,-			

a) All water delivered to long-term SWP contractors, including current and deferred entitlement, surplus, unscheduled, emergency relief, exchange, and non-SWP water

delivered through SWP facilities to Napa County Flood Control and Water Conservation District.
b) Statutes of 1978, Chapter 1207, added Section 135 to the Revenue and Taxation Code, requiring assessment at 100 percent of full value for the 1981-1982 fiscal year and fiscal years thereafter.

c) Total of all Plumas County Flood Control and Water Conservation District, including Last Chance Creek Water District.
d) District includes land in the San Joaquin Valley Area formerly known as Devil's Den Water District.
e) Assessed valuation not available on an agency area breakdown.

f) Total for MWD, including Calleguas Municipal Water District, which is common to MWD and Ventura County Flood Control District.
g) Includes duplicate values. Some areas that are within two or more agencies are included in each agency's total.
h) Source: California Statistical Abstract, published by the State Department of Finance in November 1997.

## Chapter 1 **Executive Summary**



Silverwood Lake, but is he fishing, boating, or just relaxing?

Executive Summary Chapter 1

Bulletin 132-97, Management of the California State Water Project, continues the annual series begun in 1963. This thirty-fifth edition reports planning, financing, constructing, managing, and operating activities of the State Water Project. The SWP is operated and maintained by the California Department of Water Resources. Bulletin 132-97 also discusses significant SWP events and reports on issues that affect SWP management and operations. It covers water year 1995-1996 (October 1, 1995, to September 30, 1996), calendar year 1996, and fiscal year 1996-1997 (July 1, 1996, to June 30, 1997). Because these reporting periods overlap to some degree, some events may be discussed in more than one bulletin.

#### **Hydrologic Conditions**

At the beginning of water year 1995-1996, storage in the major reservoirs was 28.1 million acre-feet, 130 percent of average. Winter arrived the second week of December and brought with it the strongest storm in more than a decade. By the end of December, precipitation was 135 percent of average for the month and seasonal totals were 80 percent of average. Statewide runoff in November was 30 percent of average.

On December 31, total SWP reservoir storage was about 1.38 million acre-feet more than the previous year. Lake Oroville alone contained 2.7 million acrefeet, compared to 1.67 million acre-feet at the same time last year.

February was the third month in a row with above average precipitation in Northern California. Runoff, also much above average, caused some moderate flood control releases from reservoirs in the Sierra foothills.

Spring 1996 was about average until mid-May. Several days of uncommon rain in the northern and central Sierra pushed mountain river runoff to flood levels. Total May precipitation in the northern Sierra was 350 percent of average. Seasonal totals since the beginning of the water year were 125 percent of average. May runoff was 150 percent of normal.

By midsummer, statewide precipitation was about 115 percent of average and reservoir storage was still above normal.

Water year 1996 ended with above-average precipitation for most of California. Total water year runoff was 120 percent of average, compared to 180 percent at the same time in 1995. Reservoir storage remained about 120 percent compared to 130 percent the prior year. Figure 1-1 and Chapter 9 provide more detailed information.

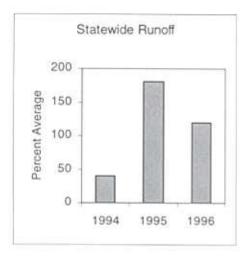
#### **40th Anniversary**

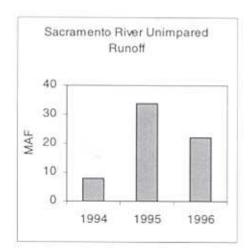
On July 5, 1996, the Department of Water Resources marked its 40th year of service to the people of California. When created by legislative mandate in 1956, the Department focused on investigating the State's water resources and planning a project that would convey water from the North with its abundant supplies to the arid South.

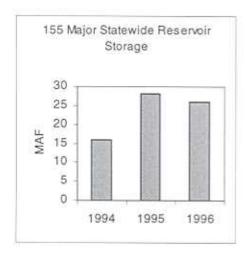
In 1957, the Department completed *The California Water Plan*. This plan, together with plans for a proposed Feather River Project, became the basis for the SWP. Although construction began on the SWP in 1957, it was not officially authorized until the passage of the Burns-Porter Act in 1959 and a \$1.75 billion bond issue in 1960. Today, the SWP is the largest state-built, multipurpose project in the nation.

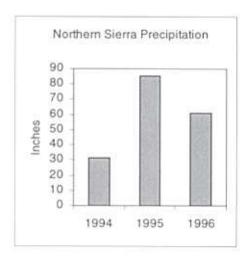
Operating and maintaining the SWP, as well as administering its long-term contracts, are the Department's major focus. However, its responsibilities have expanded to include water quality improvement, water management strategies, flood control and forecasting, local assistance programs, environmental protection, water conservation, dam safety, and public education.

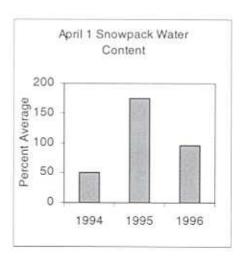
Figure 1-1 Key Hydrological Measurements, Water Years 1994-1996











All figures are for September 30, except for the April 1 chart

Executive Summary Chapter 1

#### New Year's Floods

A heavy snowfall in December 1996 produced snows at low elevations. By late December 1996, precipitation was well above average. December in the northern Sierra was the second wettest of record, surpassed only by 1955. The snowfall was followed by torrential rains from December 26 to January 2. During that week, about 40 percent of an average year's total precipitation fell at high elevations. The storm produced a 3-day record flood volume on major rivers from Shasta Dam to the southern Sierra. Runoff during December was about three times the average. The huge runoff amount exceeded the flood control capacity of several reservoirs and resulted in spills of excess water.

Rainfall at lower elevations was also above average. Overall, the Sacramento River flood control system reduced peak flows on the system. However, there were two serious levee breaks in the Sacramento Valley—one on the Feather River south of Marysville and another on the Sutter Bypass west of Yuba City. Table 1-1 shows comparisons of high stages at selected stations.

The uncontrolled Cosumnes River, the Tuolumne River near Modesto, and the San Joaquin River near Fresno all experienced major flooding. Levees along the rivers proved inadequate for flood control during storms of this magnitude, raising serious concerns about the flood protection potential of the levee system.

Many of the levees on the Sacramento and San Joaquin river systems were originally constructed more than 100 years ago. The newest of the major river levees (along the north side of the American River) was constructed by the U.S. Army Corps of Engineers more than 40 years ago. These river systems combined have about 1,800 miles of flood control project levees, 1,300 miles of designated floodways, several thousand acres of project channels, and 55 other major flood control works, i.e., overflow weirs and bypasses. Naturally, continued vigilance and maintenance of these structures are critical elements of flood control. These duties are shared by federal, State, local, and private entities.

Another strong storm system arrived January 20. Fortunately, a break in heavy storms allowed flood control systems to drain and partly restore reservoir flood control space on the Sacramento and San Joaquin systems. Although this storm was only about two-thirds as strong as its predecessor, it was heavier in some lower-elevation areas and resulted in significant local stream flooding.

The storms caused extremely high inflows to Lake Oroville. On January 1, 1997, a record 302,000 cfs raised Oroville storage into flood control space. The Department operates Oroville with 21 percent vacant space to use as flood control storage. The required flood control space was restored January 12; the space was encroached again on January 22 when another strong storm series brought more flood water.

On January 11, the SWP began accepting flood water into the California Aqueduct through the Kern River Intertie. This action decreased flooding in the Tulare Lake Basin. By the end of February, about 50,000 acre-feet of flood water from the Kern River Intertie had entered the Aqueduct.

During the past 40 years, the Department has achieved an impressive record of milestones. Among them are completing initial and additional facilities of the SWP; becoming a bulk power agency to better manage power needs; establishing a Coordinated Operation Agreement between the SWP and the federal Central Valley Project; initiating a California Water Bank to facilitate water transfers and sales during drought years; signing the Bay-Delta Accord—a major agreement affecting Delta water supplies, water quality, and environmental restoration; the expected completion of Phase II of the Coastal Branch Aqueduct; and negotiating the Monterey Agreement, which changed SWP contract terms and methods to allocate, store, and sell water.

#### 1996 Water Deliveries

In 1996, the SWP delivered a total of 3,733,767 acre-feet of water to 25 long-term water contractors and 17 other agencies. Total 1996 SWP deliveries included 2,543,472 acre-feet of entitlement, 3,907 acre-feet of recreation/fish and wildlife water, and 1,185,218 acre-feet of nonentitlement water delivered to satisfy agreements made with SWP contractors and other agencies, including the U.S. Bureau of Reclamation. Table 1-2 presents information about water deliveries through 1996.

#### **Entitlement Water**

Entitlement water delivered includes 2,382,866 acre-feet of entitlement water; 131,959 acre-feet of

Chapter 1 Executive Summary

Table 1-1
Historical Comparison of Flood Peaks for 1997, 1995, and 1986
(Preliminary data in feet)

Station	January 1997	1995	1986	Previous Record
Sacramento River				
Above Bend Bridge	30.6	30.6	32.8	36.6 in January 1970
Ord Ferry	118.7	119.0	118.3	119.8 in January 1970
Colusa	68.6	67.6	68.0	68.5 in March 1983
Fremont Weir	42.5	38.6	41.7	41.7 in February 1986
Sacramento, I St.	30.4	27.2	30.7	30.7 in February 1986
Feather River				
Yuba City	78.2	67.6	76.3	76.3 in February 1986
Nicolaus	50.4	45.0	49.1	49.1 in February 1986
American River				
H Street	42.7	35.2	43.4	43.4 in February 1986
Cosumnes River				
Michigan Bar	18.3	11.5	14.8	14.8 in February 1986
Tuolumne River				
Modesto	70.9	56.6	55.2	69.2 in December 1950
San Joaquin River				
Newman	66.1	64.8	64.7	65.9 in February 1969
Vernalis	34.9	26.8	29.9	34.6 in January 1969

1995 carryover entitlement water delivered in 1996; and 28,647 acre-feet of interruptible water delivered to three long-term water contractors. Interruptible entitlement water is a category developed as part of the Monterey Agreement.

**Water Transfers**. Transfers of entitlement water in 1996 included 200,513 acre-feet of entitlement water transferred between six SWP long-term contractors and three non-SWP water agencies.

Water for Recreation, Fish, and Wildlife. The SWP delivered 3,907 acre-feet of water for recreational use and fish and wildlife as follows:

- 715 acre-feet for recreational use at Lake Del Valle, O'Neill Forebay, Silverwood Lake, Lake Perris, and Castaic Lake;
- 2,362 acre-feet to Castaic Lake and Castaic Lagoon, an impoundment downstream from Castaic Lake devoted entirely to recreation;
- 829 acre-feet for wildlife management in the Pilibos Wildlife Area near O'Neill Forebay; and
- 1 acre-foot to maintain a trout fishery in Piru Creek.

#### **Non-SWP Water Deliveries**

In 1996, SWP facilities were used to deliver non-SWP water for various agencies, including the Central Valley Project. This category also includes non-SWP water transferred between agencies.

The Department used SWP facilities to convey CVP water; water transferred from Byron-Bethany Irrigation District to Alameda County Flood Control and Water Control District-Zone 7; water rights water; and water acquired by Westlands Water District from Kings River Water Association for delivery to WWD.

In 1996, the Department conveyed 213,762 acre-feet of CVP water through SWP facilities. The Department regularly conveys CVP water under agreements with contractors that receive water from the U.S. Bureau of Reclamation through the Cross Valley Canal. Other agencies or corporations, including the U.S. Department of Veterans Affairs, U.S. Fish and Wildlife Service, and Musco Olive Products, Inc., also receive CVP water through agreements between the Department and USBR.

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Table 1-2 Water Delivered by Category, 1962 through 1996

	Water Delivered (Acre-feet)								
	Entitlement Water (a Other Water Deliveries								
				Surplus and Unscheduled					_
	Municipal						Feather		
	and			Municipal/		Other	River	Recreation	Total
	Industrial	Agricultural	Total	Industrial	Agricultural	Water (b	Diversions (c	Water	Deliveries
Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1962						18,289			18,289
1963						22,456			22,456
1964						32,507			32,507
1965						44,105			44,105
1966						67,928			67,928
1967	5,747	5,791	11,538	0	0	53,605			65,143
1968	46,472	125,237	171,709	10,000	111,534	14,777	866,926		1,174,946
1969	34,434	158,586	193,020	0	72,397	18,829	794,374		1,078,620
1970	47,996	185,997	233,993	0	133,024	38,080	759,759		1,164,856
1971	85,286	272,054	357,340	2,400	293,619	44,119	778,362	8	1,475,848
1972	181,066	430,735	611,801	22,205	401,759	66,638	817,398	6,489	1,926,290
1973	293,824	400,564	694,388	3,161	293,255	42,511	800,743	1,155	1,835,213
1974	418,521	455,556	874,077	4,753	412,923	46,224	911,613	2,118	2,251,708
1975	641,621	582,369	1,223,990	21,043	601,859	63,793	862,218	3,377	2,776,280
1976	818,588	554,414	1,373,002	32,488	547,622	115,217	946,440	1,745	3,016,514
1977	280,919	293,236	574,155	0	0	389,065	581,994	1,111	1,546,325
1978	742,385	710,314	1,452,699	3,566	13,348	121,225	786,517	1,691	2,379,046
1979	690,659	969,237	1,659,896	66,081	582,308	187,630	882,549	1,766	3,380,230
1980	730,545	799,204	1,529,749	19,722	384,835	46,459	875,045	2,131	2,857,941
1981	1,057,273	852,289	1,909,562	12,000	896,428	279,161	838,557	4,688	3,940,396
1982	928,721	821,303	1,750,024	0	215,873	154,882	776,330	4,646	2,901,755
1983	483,499	701,370	1,184,869	0	13,019	181,453	602,905	7,849	1,990,095
1984	725,925	862,694	1,588,619	3,663	259,254	381,024	832,332	7,040	3,071,932
1985	992,538	1,002,915	1,995,453	9,638	298,034	404,842	870,008	4,033	3,582,008
1986	998,611	997,025	1,995,636	2,595	34,025	193,606	791,737	3,865	3,021,464
1987	1,096,368	1,033,718	2,130,086	6,949	107,958	377,592	831,947	7,672	3,462,204
1988	1,316,820	1,068,302	2,385,122	0	0	507,076	794,834	4,889	3,691,921
1989	1,602,454	1,251,293	2,853,747	0	0	474,559	830,500	8,135	4,166,941
1990	1,876,072	706,079	2,582,151	0	90	424,697	875,099	9,262	3,891,299
1991	536,669	12,444	549,113	3,521	0	551,051	565,395	4,879	1,673,959
1992	961,649	509,805	1,471,454	1,156	0	144,789	613,978	2,605	2,233,982
1993	1,064,866	1,250,369	2,315,235	0	0	254,854	822,589	2,609	3,395,287
1993	1,183,142	678,834	1,861,976	0	0	236,739	874,018	8,200	2,980,933
1995	819,554	1,211,869	2,031,423	0	0	62,836	860,077	2,575	2,956,911
1996	1,157,729	1,385,743	2,543,472	0	0	251,391	934,997	3,907	3,733,767
Total	21 910 052	20,289,346	42 100 200	224 044	5 672 464	6 320 500	22 270 244	109 445	77,824,688
Total	21,819,953		42,109,299	224,941	5,673,164	6,329,598	23,379,241	108,445	11,024,000

a) Includes amounts of deliveries of carryover entitlement water and advance entitlement water.
 b) Includes amounts of SWP and non-SWP water conveyed for SWP and non-SWP water contractors.
 c) Includes amounts of water diverted according to various water rights agreements.

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Water rights water is transferred through SWP facilities to long-term SWP contractors and other agencies under various local water rights agreements. In 1996, 970,703 acre-feet of water rights water were delivered to the Feather River, North Bay, South Bay, and Southern California areas.

Nine agencies in the Feather River Service area received 934,997 acre-feet of regulated local supplies through agreements with the Department. Those agencies hold water rights to Feather River water that predate operation of the SWP.

#### **Monterey Agreement**

The Monterey Agreement was executed by the Department and the SWP long-term water contractors on December 1, 1994. This agreement established the Monterey Principles for amending the Department's SWP water contracts with the long-term contractors.

As water allocation concerns intensifed during the 1987-1992 drought, the Department and water contractors decided to update management of the SWP by substantially revising SWP long-term contracts

#### State Water Project "Monterey Agreement"

- 1. Water Allocations. Allocations are based on entitlement.
- 2. Water Allocations When Requests Exceed Available Supply. Initial agricultural deficiency is eliminated; Article 18(b) [permanent shortage provision] is eliminated.
- 3. **Kern Water Bank.** Kern Fan Element property is transferred to agricultural contractors; agricultural contractors permanently retire 45,000 acre-feet of entitlement.
- 4. **Permanent Sales of Entitlement.** Agricultural contractors commit to allow up to 130,000 acre-feet of entitlement to be sold to urban contractors, on a willing buyer-willing seller basis.
- 5. **Restructuring to Ensure Financial Integrity of the SWP.** Contractor payments in excess of SWP financial obligations are returned to the contractors as follows: money for agricultural contractors is put into a trust fund for rate management; money for urban contractors is distributed directly to them.
- 6. **Terminal Reservoirs-Points of Delivery.** The contractors paying for the terminal reservoirs gain increased control/management of those reservoirs.
- 7. **Interruptible Water Service Program.** Current categories of surplus, wet weather, and Article 12(d) [shortage makeup provision] water are replaced by a single category of interruptible water, which is allocated based on entitlement and delivered at the melded SWP power rate.
- 8. **Nonproject Water Transport.** Contractors have the right to transport nonproject water in SWP facilities, at the melded SWP power rate.
- 9. **Water Storage Outside Service Area.** Rules for carryover in SWP conservation facilities are expanded; there are no limits on groundwater storage of SWP water outside a contractor's service area.
- 10. **Turnback Water Pool Sales.** An annual turnback pool is created under which water allocated but not needed by a contractor may be sold to interested contractors and/or the Department at a percentage of the Delta Water Rate, or to noncontractors.
- 11. **Conforming Contract Amendments.** SWP contracts are to be amended to conform to these principles.
- 12. Project Improvements. The Department reaffirms its obligation to complete the SWP.
- 13. **Integrated Package.** The principles come as a package—a contractor can participate in all or none of the provisions.
- 14. **No Precedent.** If the amendments are not entered into, the parties agree not to use these principles in court proceedings.

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and their administration. The Monterey Agreement was released to the public December 16, 1994, in the form of 14 principles (see sidebar State Water Project "Monterey Agreement" above).

#### **Monterey Agreement Litigation**

The Planning and Conservation League filed a law-suit against the Department and the Central Coast Water Authority in California Superior Court in December 1995, challenging the Monterey Agreement, which was designed to be effective when all lawsuits challenging it were resolved. The lawsuit alleged that the environmental impact report was inadequate; that Central Coast Water Authority, lead agency for the EIR, was improperly named; and that the Kern Water Bank was improperly transferred to Kern County Water Agency. In May 1996, the Court ruled in favor of the Department and CCWA on all cases of action; in August 1996, the Court entered judgment in favor of the Department and CCWA.

In May 1995, San Bernardino Municipal Water District filed a cross-complaint against the Department as part of the Monterey litigation. On October 22, 1996, the Department and San Bernardino entered into an agreement, dismissing the San Bernardino cross-complaint. The Department and San Bernardino agreed to enter into studies to resolve the problems caused by high groundwater levels in the district's service area.

#### **Implementation**

On August 9, 1996, the Kern Fan Element of the Kern Water Bank was transferred to the Kern County Water Agency. An annual entitlement of 45,000 acre-feet of agricultural water—40,670 acre-feet from Kern County and 4,330 acre-feet from Dudley Ridge Water District—was permanently transferred to the Department and retired.

The goals of the Monterey Agreement—increased reliability of existing water supplies, stronger financial management of the SWP, and increased water management flexibility by providing more tools to local water agencies—were increasingly realized as a number of contractors implemented provisions allowed under their Monterey Amendments.

Under the Monterey Amendments, 130,000 acre-feet of agricultural entitlement water may be sold permanently to contractors for urban use. Kern County

Water Agency sold 25,000 acre-feet of its entitlement water to Mojave Water Agency, the first sale under this provision.

Santa Barbara County Flood Control and Water Conservation District's Table A entitlement was reduced for 2 years, in accordance with provisions of the Monterey Amendments that allow contractors to temporarily reduce their Table A entitlement and receive rate reductions.

Two contractors, Alameda County Water District and Santa Clara Valley Water District, stored and later recovered a portion of their 1996 entitlement water and other water supplies from groundwater basins. This action was in accordance with the provisions of the Monterey Amendments that encourage operational flexibility for the SWP, such as groundwater storage of SWP water outside a contractor's service area for later use within the service area.

Turnback Water Pool Program. The turnback water pool program, in its second year of operation, allowed SWP contractors to offer a portion of their approved 1997 entitlement water for sale in a turnback pool for use outside their service area. The turnback water was allocated among selling and purchasing contractors based on supply and demand. Thirteen contractors participated in the program.

See Chapter 1, Bulletin 132-96, for a complete listing of operational changes in the SWP resulting from the Monterey Agreement.

#### **Amendments to Water Contracts**

Four SWP contractors signed Monterey Amendments to their water contracts in December 1996 and one SWP water contractor signed a Monterey Amendment in March 1997, joining the 20 other long-term water supply contractors who had previously executed Monterey Amendments. See Chapter 10 for a complete listing of these contractors.

#### Coastal Branch, Phase II

On October 30, 1995, the Superior Court in San Luis Obispo County ruled on the Canyon and Streams Alliance lawsuit regarding the adequacy of the supplement to the final environmental impact report. The court ruled that the objections were not raised in

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a timely manner and were without merit because changes did not result in significant new impacts.

Construction began on the project in late 1993. Crews excavated millions of cubic yards of earth, drilled new tunnels, renovated an existing mile-long tunnel, and buried more than 20,000 sections of pipe at least 5 feet below the surface. Boring machines tunneled under streambeds and highways.

A 100-mile fiber optic cable allows technicians in Sacramento and at the Polonio Pass Treatment Plant to monitor and operate the facilities 24 hours a day. Portable computers can also be used by field personnel to monitor operations.

The Coastal Branch pipeline—about 100 miles, the longest in the SWP—winds through Kern, San Luis Obispo, and Santa Barbara counties. The Department worked with the Central Coast Water Authority to construct the project. Gravity and pressure move the water. (See Chapter 13.)

The last section of pipe for the Coastal Branch was set in place April 28, 1997. The 40-foot section of pipeline is located east of San Luis Obispo. It is part of the project constructed to move water 143 miles from the California Aqueduct to Vandenberg Air Force Base. At Vandenberg, it links to a 42-mile-long locally-owned pipeline that runs into Lake Cachuma in Santa Barbara County. Dedication of the facility is scheduled for July18, 1997.

#### **East Branch Extension**

In July 1995, the Department completed a feasibility study to extend the East Branch of the SWP from the Devil Canyon Powerplant to the San Gorgonio Pass Water Agency service area. San Gorgonio and San Bernardino Valley Municipal Water District agreed to participate in a two-phase project to meet present water needs and financial capability. The East Branch Extension will bring SWP water to Yucaipa, Calimesa, Beaumont, Banning, and other communities as early as 1999.

The completed East Branch Extension will be a 33-mile pipeline linking parts of San Bernardino's service area and the eastern part of San Gorgonio's service area to the California Aqueduct. Phase I will include construction of 13.5 miles of new pipeline and use 19.5 miles of pipeline owned by San

Bernardino as an interim delivery system. When the needs of San Gorgonio surpass 16 cfs, Phase II of the EBX will be constructed and bypass the San Bernardino pipelines. (See Figure 1-2.)

On August 20, 1996, San Bernardino and San Gorgonio agencies signed an agreement to participate in the East Branch Extension. San Gorgonio is the last SWP contractor to receive SWP water through direct delivery or exchange. The Department will proceed with the final design and construction of the Phase I facilities.

The project schedule was revised to include a supplement to the final environmental impact report. The supplement will cover alignment changes on the Singleton Pipeline and the addition of the Crafton Hills Pipeline and Reservoir. By October 1996, the entire alignment had been flown and aerial photographs taken. Topographic mapping began and team members walked the proposed Crafton Hills alignment and agreed on a route.

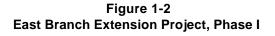
By December 1996, the first draft of the project management plan had been prepared and distributed. Topographic mapping was well under way and geologic exploration began.

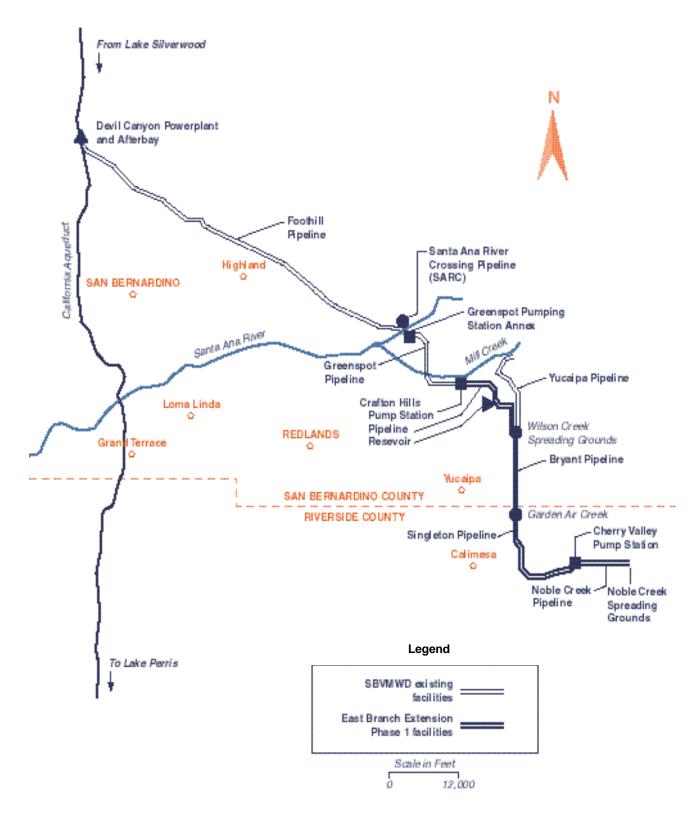
The administrative draft of the supplemental environmental impact report was completed and reviewed by selected team members and representatives of the participating water agencies. On June 18, 1997, a meeting was held in San Bernardino to discuss incorporation of the comments. Coordination meetings were also held to discuss surveying for property descriptions, writing property descriptions, drawing appraisal maps, appraising the properties, and acquiring the easements.

#### San Bernardino Tunnel Intake Reconstruction Project at Silverwood Lake

At the south end of Silverwood Lake, water enters the San Bernardino Tunnel to continue its journey down the East Branch through Devil Canyon Powerplant to Lake Perris. In 1988, Department engineers began studies of the 3.8 mile-long tunnel and the intake tower to optimize power production at Devil Canyon. Their findings indicated that the tower, designed in 1967, might be damaged if an earthquake

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of magnitude 5.5 occurred along the San Andreas Fault. Such a failure would interrupt vital water deliveries to Southern California.

The Department was then ordered by the Federal Energy Regulatory Commission to strengthen or replace the intake tower. The decision was made to construct a new seismically-stable structure next to the existing tower. The new tower would stand 125 feet high and draw water from one or a combination of four different tiers.

The Department's initial plan to start construction in fall 1994 was delayed by litigation from environmental groups who felt that mitigation plans to protect the lake's wildlife and fishery were insufficient. A year later, work began on the structure. Construction plans required two drawdowns. The first drawdown in September 1995 lowered the lake 43 feet below its normal level, and the second in October 1996 took the lake level down another 50 feet.

During the project, environmental specialists from the Department's Southern District monitored environmental compliance and worked with other agencies on programs to protect the lake's bald eagle population and enhance its fishery, as well as to mitigate impacts to the recreational use of Silverwood Lake.

The new San Bernardino tunnel intake structure became operational in early March 1997. This event allowed the SWP to begin refilling the lake to meet heavier water demands of downstream users during warmer weather. The project was essentially completed a few months later, and a celebration was planned for July to publicize Silverwood Lake State Recreation Area's reopening and its 25th anniversary.

# Reorganization of the Division of Planning and Division of Local Assistance

As the Coastal Branch Project neared completion with no comparable work projects in sight, questions

about the workload and focus of the Division of Planning led the Department to contract with Cooperative Personnel Services to reevaluate the roles of the Division of Planning and the Division of Local Assistance.

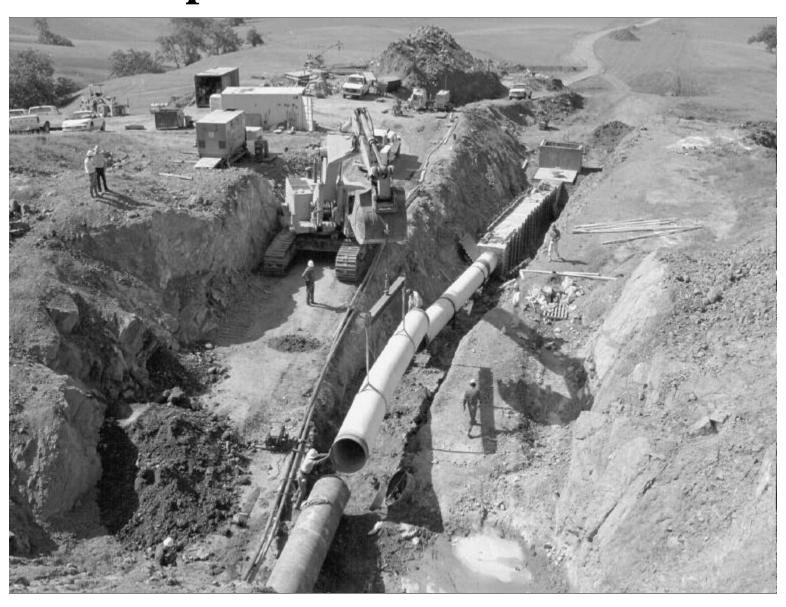
The divisions and offices affected by the reevaluation include: Division of Local Assistance, Division of Planning, Environmental Services Office, and the Office of Water Education. The proposed changes include:

- The Division of Planning was renamed the Office of State Water Project Planning, in line with its new focus on SWP activities and needs;
- The Division of Local Assistance was renamed the Division of Planning and Local Assistance;
- The Statewide Planning Branch was transferred from the Division of Planning to the Division of Planning and Local Assistance;
- Delineators and drafting personnel from the Statewide Planning Branch moved to Graphic Services in the Office of Water Education;
- The Environmental Support Section from the Division of Planning will be renamed the Environmental Documentation and Review Branch and transferred to the Environmental Services Office;
- Several organizational changes were made in the San Joaquin District and Central District of the Division of Planning and Local Assistance; and
- Certain branches and sections of the Office of State Water Project Planning and the Division of Planning and Local Assistance were renamed and staffing realigned to better reflect their functions.

The Office of State Water Project Planning will focus on SWP needs. The Division of Planning and Local Assistance will have a statewide focus that includes support for SWP planning activities in the districts.

Three implementation committees were formed to work out details of the changes. The reorganization took effect July 1, 1997.

# Chapter 2 Future Storage and Delivery Capabilities



Laying the last pipe section of the Coastal Branch, Phase II

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Construction of Phase II of the Coastal Branch was estimated to be completed in July 1997.					

o meet the water deliveries specified in water service contracts, the Department of Water Resources will need to construct additional storage and delivery facilities as part of the State Water Project. In planning and developing those facilities, however, the Department faces two significant challenges: (1) finding technically suitable projects; and (2) satisfying many complex environmental procedures, laws, and regulations. Many of the environmental concerns center on the effects that additional storage and delivery facilities may have on the water quality and environment of the Sacramento-San Joaquin Delta. The Delta is the critical link in the SWP conveyance system. As such, developing additional SWP facilities depends on resolution of Delta conflicts.

In 1995, the CALFED Bay-Delta Program began developing the comprehensive, long-term solution for the Delta. The Program is a component of a process defined in the State-federal framework agreement signed in June 1994. This agreement calls for a cooperative and coordinated process to solve long-term water quality and ecosystem problems in the Bay-Delta Estuary. The signers of the agreement, known collectively as CALFED, became responsible for setting water quality standards and developing long-term solutions to fish and wildlife, water supply reliability, flood control, and water quality problems in the estuary.

The Department has vigorously supported this effort as a means of developing and managing the State's water resources for the benefit of its citizens and the environment and of meeting the water delivery commitments of the SWP. The Department is also developing a planning strategy for the SWP that is intended to lay the groundwork for developing additional SWP water supplies. The progress of the planning strategy depends on the evolution of the CALFED Bay-Delta Program and the support of the SWP contractors.

# **SWP Planning Strategy**

Because of the need for additional water supplies for the SWP, along with the impacts of new constraints on Delta exports, the Department initiated efforts in 1994 to formulate a new planning strategy for the SWP Future Water Supply Program. The Department held initial meetings with all interested SWP contractors to discuss regional water management issues, requirements for SWP supply reliability, and strategies for implementing new demand reduction and supply development projects.

The end product of the SWP planning strategy is expected to be a detailed plan comprised of waterdemand reduction and supply-enhancement programs and their implementation schedules. The plan would specify how the SWP would meet interim (10year planning horizon) and long-term (year 2020 and beyond) water demands of SWP service areas according to service-area-specific ranges of desired reliability. During 1997, the SWP contractors began compiling information regarding: (1) how much additional SWP water each contractor is interested in procuring in normal years and in years with only 50 percent SWP deliveries, and (2) how much each is willing to pay for this water. The Department will use this information to identify projects that provide the requested water at the desired price. This program will continue to be closely coordinated with the SWP contractors and will be modified, as necessary, to meet their changing needs. It will also incorporate relevant portions of the CALFED Bay-Delta Program's long-term solution.

#### **Coastal Branch Delivery Facilities**

In keeping with the Department's efforts to have appropriate deliveyr facilities in place, the Coastal Branch of the California Aqueduct was planned, designed, and constructed in two phases. The first phase was completed in the late 1960s and delivers water for agricultural use to contractors in northwestern Kern County. The Phase I facilities include two pumping plants and a 14.8-mile coastal stub canal extending from Avenal Gap to the vicinity of Devil's Den in northwestern Kern County. Berrenda Mesa Water District, a member of Kern County Water Agency, receives water through the Phase I facilities. The second phase became operational in mid-1997 and delivers water for municipal and industrial use to Santa Barbara County Flood Control and Water Conservation District and San Luis Obispo County Flood Control and Water Conservation District.

#### **Phase II Facilities**

In October 1986, SBCFCWCD and SLOFCWCD requested that the Department conduct the planning and environmental studies needed to complete Coastal Branch, Phase II. The final EIR was released in May 1991; the notice of determination and summary of findings were issued in July 1992.

SBFCWCD and SLOFCWCD were notified, as required in paragraph 45(d) of the water supply contracts, that the Department would start final design on Phase II in June 1992. The two districts notified the Department of their requests for entitlement water.

#### **Phase II Construction**

The Phase II project was divided into six construction reaches. In early 1994, the Department began acquiring rights-of-way and obtaining additional permits necessary to construct the project, and began construction of the first two reaches. Four addenda and one supplement to the final EIR were prepared to document changes in the project. With mitigation, the project caused no significant long-term impacts. All significant impacts were short-term and were associated with construction (traffic, noise, and air quality). A legal challenge to the adequacy of the supplement to the EIR was resolved in favor of the Department.

Construction of Phase II of the Coastal Branch involved laying 100 miles of buried pipe from the existing Phase I terminus near Devil's Den to the end of Reach 6 at Vandenberg Air Force Base. Other facilities constructed include Devil's Den, Bluestone,

and Polonio Pass pumping plants, and two water-storage facilities. The two tank facilities provide hydraulic stability and control in operating the project. A regional water treatment plant owned and operated by the local water purveyors (Central Coast Water Authority) was constructed at Tank Site 1 at Polonio Pass. The Department contracted CCWA to construct Reaches 5B and 6. With the exception of an erosion control and seeding contract, which is expected to extend into 1998, all construction is expected to be complete by late 1997 with water service beginning in the summer of 1997.

#### Los Banos Grandes

One often-cited approach for improving the water supply reliability and operational flexibility of the SWP is through water banking south of the Sacramento-San Joaquin Delta. Water banking moves water from the Delta during periods of high flows in the winter into storage facilities located south of the Delta for later release during dry periods.

Since the 1960s, the Department has conducted a number of studies to evaluate potential south-of-the-Delta off-stream reservoir sites. These studies led to the December 1990 *Los Banos Grandes Facilities Feasibility Report*, recommending construction of a 1.73 million acre-foot reservoir and associated facilities on Los Banos Creek in western Merced County.

The Department designed the LBG facilities as a primary south-of-the-Delta water bank. A major purpose of the facilities would be to reduce the frequency and magnitude of projected water shortages by increasing dependability of existing water supplies available to SWP contractors. Improving reliability of SWP supplies would reduce the likelihood of long-term water shortages that could occur more frequently as demand increases.

In addition to improving the reliability of the SWP water supply, LBG would benefit Delta fisheries by providing additional flexibility to operate existing and planned delivery systems and by shifting Delta pumping to months with least significant effects on fisheries.

#### **Investigations and Status**

A feasibility report and draft environmental impact report for the proposed LBG project were completed in December 1990. The final EIR and statement were scheduled to be completed in 1993; construction of facilities was to begin in mid-1995. However, since the release of the 1990 reports, several events occurred to curtail the availability of exports from the Sacramento-San Joaquin Delta. The U.S. Fish and Wildlife Service and National Marine Fisheries Service mandated measures to protect delta smelt and winter-run chinook salmon. These two Delta fish species are listed under the federal Endangered Species Act. The State Water Resources Control Board and the federal Environmental Protection Agency proposed new flow and water quality standards for the Delta. These actions significantly reduce the amount of Delta flows anticipated to be available for diversion and storage in the proposed LBG facilities.

LBG or an alternative off-aqueduct reservoir south of the Delta may yet be selected as a component of the CALFED Bay-Delta solution. While the CALFED selection process continues, work on LBG is limited to preserving the viability of environmental data collected at the LBG site, and evaluating mitigation techniques for potential project impacts.

#### This work includes:

- periodic field surveys for threatened and endangered species;
- continued monitoring of the Sycamore Pilot Program, developed by the Department to evaluate survival parameters for sycamore trees in the reservoir area; and

evaluation and resolution of issues related to potential barriers to movements of the San Joaquin kit fox.

#### **Kern Water Bank**

The Kern Water Bank is a conjunctive-use, ground-water-banking program proposed by the Department in cooperation with Kern County Water Agency and local water districts. KWB is broadly defined as all opportunities to store and extract SWP water in the Kern County groundwater basin. The goal of KWB is to augment the dependable water supply of the SWP by storing water available from the Delta during wet periods in the Kern County groundwater basin for use during dry periods.

The proposed KWB consisted of eight separate projects or elements. In 1988, the Department purchased 20,000 acres of property overlying the Kern River alluvial fan for a direct recharge project known as the Kern Fan Element. Seven other local elements involving direct and in-lieu recharge programs were proposed by local water districts in Kern County to expand their conjunctive use capabilities. These were studied under the KWB planning efforts. Together, the eight elements could store as much as 3,000,000 acre-feet and, under 1988 regulations controlling Delta exports, provide about 400,000 acre-feet of additional water in dry and critically-dry years.

The Department's efforts to implement the KFE effectively ended in December 1994 with the signing of the Monterey Agreement. The Agreement set the principles for transferring the KFE property from the Department to designated agricultural contractors

#### **Endangered Species Act**

In planning, constructing, and operating the SWP, the Department must consider the effects its actions will have on organisms, plants, birds, reptiles, fish, and mammals listed as threatened or endangered according to the Federal Endangered Species Act (Title 16, United States Code sections 1531-1544 [1973]) and the California Endangered Species Act (California Fish and Game Code sections 2050-2098 [1984]). An endangered species is one in danger of extinction in all or a significant portion of its range; a threatened species is one likely to become endangered. These acts are designed to protect threatened and endangered species by:

- ensuring federal and State agencies adopt measures to protect the species during the design, construction, and operation of projects and in taking other forms of agency action; and
- · prohibiting the taking of endangered species.

One important aspect of the acts is preserving habitat critical to the survival of the threatened or endangered species.

(primarily KCWA). The Department terminated its activities along with program funding. The local conjunctive-use elements are being evaluated by the

CALFED Bay-Delta Program for possible incorporation into a long-term solution.

#### **Environmental Policy Acts**

The National Environmental Policy Act (Title 42 United States Code sections 4321-4370 [1970]) and the California Environmental Quality Act (California Public Resources Code sections 21000-21177 [1970]) compel government agencies to document and consider environmental consequences of their actions in their decision-making process. NEPA states that it is the goal of the federal government to use all practicable means consistent with other considerations of national policy to protect and enhance the quality of the environment. All federal agencies must prepare an environmental impact statement, including a discussion of mitigation measures and alternatives, for actions significantly affecting environmental quality.

The California Environmental Quality Act is patterned after NEPA. According to CEQA, agencies are required to (1) disclose, through an environmental impact report, the significant effects proposed projects would have on the environment; and (2) search for ways to reduce or avoid environmental damage.

CEQA applies only to projects directly undertaken, funded, or approved by State or local agencies. NEPA applies to projects directly undertaken, funded, or approved by federal agencies. The Department conducts many projects in cooperation with federal agencies. In those cases both CEQA and NEPA must be followed.

NEPA requires that mitigation measures and alternatives be disclosed to the public in the EIS, but it does not generally require federal agencies to adopt such mitigation measures or alternatives. CEQA, on the other hand, does impose substantive duties on all California government agencies approving projects with significant environmental impacts to adopt alternatives or mitigation measures that they find to be feasible to substantially lessen these impacts, unless there are overriding reasons why they cannot. When a project is subject to both CEQA and NEPA, both laws encourage the agencies to cooperate in planning the project and preparing joint environmental documents.

Through the environmental review process, citizens can learn about those significant effects and, if the project is approved, the reasons for approving the project. The review process requires agencies to:

- · describe the proposed project;
- · identify the lead and cooperating agencies involved in the project;
- · determine the scope of study with the public;
- prepare and distribute a draft EIS or EIR;
- · respond to comments received on the draft;
- prepare the final EIS or EIR;
- make findings and adopt feasible alternatives or mitigation measures to avoid significant effects, if applicable;
- · adopt a monitoring plan to ensure mitigation measures are viable; and
- prepare and file applications for permits required to implement the project if the project is approved.

The scoping phase, which occurs early in the review process, is particularly important because it enables government agencies to identify issues and topics to be considered when preparing the report. Information gathered in the scoping phase helps agencies identify and evaluate reasonable alternatives; identify potential environmental impacts of the project; determine data and information needed; develop a work schedule; and allocate resources for preparing and distributing the draft environmental document for public review and comment.

NEPA requires a lead agency to involve the public during scoping, while CEQA does not. CEQA, however, does encourage public involvement at this stage. Members of the public may raise issues during the scoping phase and not just after the draft environmental document is prepared. Thus, the CEQA process leads to changes in projects through the development, consideration, and adoption of alternatives or enforceable mitigation measures to avoid or reduce any potential significant adverse effects on the environment.

Information for this chapter was provided by the Division of Planning and Local Assistance and the Office of State Water Project Planning.

# Chapter 3 Water Supply Development



Water conservation—an important part of water supply

# **Significant Events**

Passage of Proposition 204 in November 1996     provided funds for future water-supply development.				

o meet State Water Project contractors' increasing need for water, the Department of Water Resources investigates and implements plans to augment the SWP water supply.

The Department's plans include:

- developing programs to transfer water, either through programs such as the drought water bank or transfers between SWP long-term contractors and/or other agencies, including the Central Valley Project contractors;
- · establishing conjunctive-use programs; and
- using SWP funds to develop local water supplies.

#### **Water Transfers**

Before 1991, most water transfers in California were conducted on a limited basis. SWP facilities transferred water to SWP long-term contractors and other agencies in California—most notably to CVP contractors.

However, in February 1991, after 4 drought years and 3 winter months of meager precipitation, California began its first large-scale water transfer program when the Governor established the 1991 Drought Water Bank. As the drought continued into 1992, he established the 1992 Drought Water Bank in March based on the successful 1991 program. The Department administered both water banks and, when necessary, used SWP facilities to transfer the water.

In 1993, with a plentiful water supply, no water bank was established. To facilitate future drought water banks, however, the Department issued a final programmatic environmental impact report in November 1993. The EIR outlines the framework for future water bank operations under specified drought conditions.

Based on its experience in managing the 1991 and 1992 water banks, the Department also published *Water Transfers in California: Translating Concept into Reality.* Released in November 1993, this report presents an overview of issues involved in water

transfers and provides guidance for individuals and agencies interested in implementing a water transfer. Recognizing that water transfers will undoubtedly play a major role in California's future, the publication discusses lessons learned and challenges that remain for water managers and others concerned with water transfers.

The following sections briefly describe water transfer activities. Chapter 10 describes specific information.

#### **Drought Water Banks**

The 1991 and 1992 Drought Water banks successfully arranged water transfers to meet critical agricultural, urban, and fish and wildlife needs on a short-term basis. In 1992, 15 percent of the water went to wildlife refuges.

Following a wet 1993, when a water bank was not activated, a dry 1993-1994 winter along with severe water-export restrictions in the Delta resulted in major cutbacks in 1994 water deliveries to SWP and CVP contractors. In June 1994, Director Kennedy announced the activation of a 1994 Drought Water Bank. Water bank activities were immediately initiated that resulted in the acquisition and transfer of enough water to meet all 1994 critical needs.

#### 1995 Drought Water Bank

In anticipation of a dry 1995, the Department organized the 1995 Drought Water Bank Program in late 1994. The program purchased water supply options on 29,050 acre-feet of water from willing sellers while the bank was in an inactive status. If the bank had been activated, the Department would have exercised these options to meet critical needs of participating SWP and non-SWP contractors. Although the program was not activated due to abundant precipitation and snowpack throughout the State, the option purchases did improve water supply reliability for participating agencies.

#### **Supplemental Water Acquisitions**

During 1994, the Department began drafting a programmatic environmental impact report for the Supplemental Water Purchase Program. This EIR was released in February 1997 and described a 6-year program—outside the scope of a Drought Water Bank Program—intended to acquire up to 400,000 acre-feet annually from willing sellers for use by participating SWP contractors. Water for the program would be secured either through direct purchases or by the purchase of water supply options. However, comments received were highly critical of the groundwater pumping component of the program. Subsequently, the groundwater pumping component was removed, leaving only reservoir storage as a possible source of water under this program. The Department continues to explore possibilities of purchasing water via short-term transfers.

#### **State Water Project Conveyance**

The Department arranges for the temporary transfer of water through SWP facilities for SWP long-term contractors as well as for other agencies. Those transfers can take three forms: (1) water exchanges among SWP long-term contractors or among contractors and non-SWP contracting entities, (2) entitlement water transfers between long-term SWP contractors; or (3) transfers of nonproject water to non-SWP and SWP agencies. Most temporary water transfers must be approved by the State Water Resources Control Board in accordance with Sections 1725 through 1728 of the *California Water Code*.

# **Conjunctive-Use Program**

Conjunctive use of surface water and groundwater provides important benefits in water management. Historically, conjunctive-use management grew from local efforts to manage erratic water supplies. Increasing recognition focuses on the potential for conjunctive use to help alleviate regional and statewide water shortages and meet local needs. Cooperatively, local agencies and potential beneficiaries of conjunctive-use programs increase the flexibility of overall water management to improve efficiency and develop creative solutions to potential problems that may be beyond their individual grasp.

Conjunctive use is a water-management method wherein surface water is stored underground in times

of abundant supply for use in dry periods when shortages are being experienced. Carefully planned and implemented conjunctive-use programs can operate without causing significant adverse impacts. However, the effect of such programs on native vegetation and Rutland habitat, fish and wildlife resources, and third parties, as well as potential land subsidence and degradation of water quality in the aquifer, must be evaluated.

The Department has long recognized the importance of conjunctive management. It was an integral part of *The California Water Plan* (Bulletin 3) published in 1957. Since that time, the Department has continued to investigate the potential for conjunctive use, frequently called groundwater banking, to contribute to water management.

#### The Sacramento Valley

Beginning in 1992, the Department undertook a more intensive evaluation of the Sacramento Valley in an effort to identify relatively small scale, cooperative conjunctive-use projects that could augment State Water Project supplies. Capsule descriptions of the projects under investigation are presented below:

**Lower Colusa Basin.** The Department completed a cooperative prefeasibility investigation of the Lower Colusa Basin in northern Yolo and southern Colusa counties. Reclamation District No. 108, the Yolo-Zamora, and Colusa County water districts cooperated in this study. The proposed project would develop up to 34,000 acre-feet of dry-year supply for the SWP while helping alleviate problems resulting from land subsidence in the project area. In wet years, the SWP would supply water for in-lieu recharge, thereby increasing groundwater storage in the area. In dry years, water would be returned to the SWP through groundwater substitution—surface water users would pump groundwater for a portion of their supply and release an equivalent amount of surface water to the Department for its use.

American Basin. The Department completed a feasibility investigation for a conjunctive-use project in the American Basin area of Sutter, Placer, and Sacramento counties. The proposed project would develop up to 55,000 acre-feet of dry-year supply for the SWP. As with the Lower Colusa Basin, this would be accomplished through a combination of in-lieu

recharge in wetter years and groundwater substitution in dry years. Local cooperators include South Sutter Water District, Pleasant Grove-Verona and Natomas Central Mutual water companies, Placer County Water Agency, and Reclamation District No. 1001. In 1996, the American Basin Program became a pilot project to test the implementation of a new approach to project management by the Department and its contractors. This is referred to as "Opt in/out" and provides for individual contractors to fund and participate in projects with the benefits being reserved for those participants. Nine SWP contractors elected to participate in the pilot program. Negotiations are under way among the Department, the participating SWP contractors, and the local agencies to develop a memorandum of understanding that will govern activities during the environmental impact assessment and permitting phases of project development.

Butte Basin. The Department has been actively evaluating the effects of water transfers that involved the Butte Basin. These transfers identified a substantial degree of resiliency that makes the basin attractive for conjunctive operation. However, significant uncertainty surrounds the amount of "new" water that can be developed. In addition, controversy surrounds the perceived impacts of drought water bank transfers on other groundwater users in the basin. The Department has proposed development of demonstration or test projects to help sort out these issues and is working with local interests to find a mutually acceptable approach.

**Provident Irrigation District.** The Department completed a preliminary assessment of the conjunctive use potential of the Provident Irrigation District area in Glenn County. The Department and the District are discussing the potential for developing a demonstration project for the area or, alternatively, a more detailed investigation.

Local Agency Concerns. Institutions and individuals in the Sacramento Valley are faced with a confusing array of proposals for water transfers and/or conjunctive use activities. These include the Department's Supplemental Water Purchase Program, the CALFED Bay-Delta Program's inclusion of conjunctive use and its outreach program, attempts to negotiate Delta settlement issues, and other proposals. All

these activities have fostered an atmosphere of fear and distrust at the local level. The Department continues to work with local agencies and other interested parties to address their concerns and inform them about the potential for conjunctive use as an element of overall resource development and management. Local agencies are increasingly active in developing groundwater management programs and are trying to assert increased local control over water supply development and use. The counties are particularly active in adopting ordinances to regulate the groundwater portions of water transfers through permitting processes. The contentious environment that has developed is expected to slow the development of conjunctive-use projects, although the magnitude of the impact is very uncertain.

#### **Local Water Supply Projects**

Local projects to augment water supply may be financed with SWP funds and become units of the SWP if the Department determines that the projects are structurally, economically, financially, and contractually feasible as well as environmentally acceptable. SWP water contractors benefit from increased water supplies or reduced demands resulting from the projects.

Should construction costs of the local project exceed available SWP funds, local participation in financing the construction will be required. In addition, SWP funding will not exceed the actual construction costs and the local project will not become a unit of the SWP until all participants sign an agreement.

For a project to be financed by the SWP, the Department must be assured that:

- appropriate water supply contracts will be amended:
- yield developed by a local project as a unit of the SWP will become part of the SWP yield, whether for the life of the project or for an interim period; and
- the local project will not adversely affect the costs of water deliveries to nonparticipating SWP contractors.

The Department conducts a feasibility study of local projects only when conceptual and reconnaissance

reports support the project and SWP water contractors agree that the project is advantageous.

At this time, no local projects are being considered by the Department.

#### Central Valley Project Improvement Act of 1992

The Central Valley Project Improvement Act (PL 102-575; 106 Stat. 4706) made protection, restoration, and enhancement of fish and wildlife a major purpose of the CVP. Because it requires specific water supply actions, the CVPIA directly affects the joint activities of the CVP and SWP. The act indirectly influences SWP operations by addressing several Delta environmental issues.

The CVPIA is designed to (1) protect, restore, and enhance fish, wildlife, and associated habitats in the Central Valley and Trinity River basins; (2) address impacts of CVP on fish, wildlife, and associated habitats; (3) improve operational flexibility of the CVP; (4) encourage expanded use of voluntary water transfers and water conservation; (5) contribute to efforts to protect the Sacramento-San Joaquin Delta and estuary; and (6) achieve a reasonable balance among competing demands for CVP water, including fish and wildlife, agricultural, municipal, and power uses.

In addition to imposing further limitations on new and renewed CVP contracts and encouraging voluntary transfers of CVP water, the CVPIA requires the implementation of a program to ensure that by 2002, natural production of anadromous fish will be sustainable at population levels twice the average sustained from 1967 to 1991. The CVPIA also requires the dedication and management of an additional 800,000 acre-feet of CVP yield for fish and wildlife needs.

The CVPIA also specifies measures to restore fish and wildlife and their habitat. Several measures—including installing a structural temperature control device at Shasta Dam, constructing specified Delta barriers, and acquiring supplemental wildlife refuge water—require cost sharing by the State of California. USBR is establishing guidelines and procedures to implement the CVPIA requirements. The Department works closely with USBR as these programs develop to manage any effects on SWP operations and minimize adverse impacts to threatened and endangered species.

Information in this chapter was contributed by the State Water Project Analysis Office, the Division of Planning and Local Assistance, and the Office of State Water Project Planning.

# Chapter 4 **Delta Resources**



Delta waterways and islands

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# **Significant Events**

- The Department and the U.S. Bureau of Reclamation released the Draft Environmental Impact Report and Draft Environmental Impact Statement for the proposed Interim South Delta Program.
- Permits were secured to allow a 5-year extension of the Temporary Barriers Program.
- In 1996, the south Delta temporary barrier at Grant Line Canal was installed and operated for the first time.
- Staff from the Department's Delta Planning
  Branch were transferred to the CALFED BayDelta Program to assist in the development of a
  long-term Bay-Delta solution.

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ver the past 40 years many programs have been developed and implemented by federal and State agencies, including the Department of Water Resources, to manage the Delta as both a unique environmental resource and as one of California's major water supply sources.

The common goals of these programs have been to:

- improve water supply reliability to the SWP, CVP, and other Delta water users;
- determine levels of flow and salinity necessary to protect fish and wildlife habitat; and
- devise methods to control flooding, protect fish and wildlife, and provide recreational activities.

#### **Delta Water Management Programs**

Over the last decade or so, the Department's planning programs focused on solving water management problems in three distinct areas of the Sacramento-San Joaquin Delta: the north Delta, west Delta, and south Delta (Figure 4-1). In 1992, the Governor issued his water policy, which redirected the Department's Delta planning programs to emphasize solutions that could be implemented relatively quickly to improve conditions in the Delta. Meanwhile, long-term Delta solutions would be deferred to a separate process that would include public involvement from all interest groups. As part of his policy to "fix the Delta," the Governor directed that actions in the south Delta be implemented in the short term.

In June 1994, a Framework Agreement between the federal and State governments defined a cooperative process for developing a long-term solution to the water supply, water quality, and ecosystem problems of the Delta. The CALFED Bay-Delta Program, a component of the process, is conducting the required technical analyses and developing the environmental documentation for the long-term solution. The program includes extensive public outreach and input.

#### **Interim South Delta Program**

To comply with the Governor's water policy, the Interim South Delta Program requires accelerated construction of south Delta facilities that can improve Delta water conditions while the Bay-Delta

Program's long-term solution is developed and implemented. The Interim South Delta Program is designed to improve water levels and circulation in south Delta channels for local agricultural diversions. The program will also improve south Delta hydraulic conditions to increase diversions into Clifton Court Forebay, thereby maximizing the frequency of full pumping at Banks Pumping Plant.

#### **Preferred Alternative**

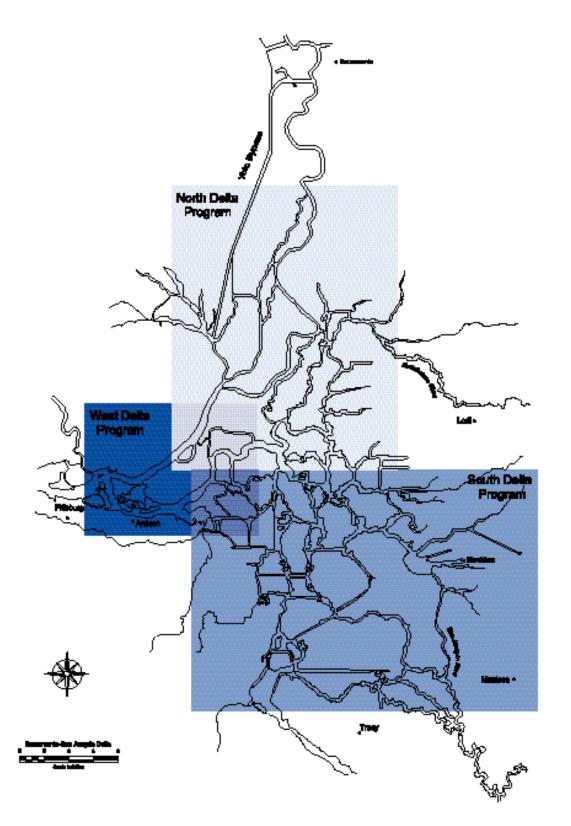
The Department and the U.S. Bureau of Reclamation would implement the preferred alternative, which consists of:

- three flow-control structures in south Delta channels to improve local water levels and circulation:
- a fish-control structure to improve fish migration in the San Joaquin River;
- approximately 5 miles of dredging in existing south Delta channels to improve conveyance and circulation;
- an additional intake to Clifton Court Forebay north of the existing intake; and
- a permit from the U.S. Army Corps of Engineers to increase diversions into Clifton Court Forebay.

The proposal for increasing diversions into Clifton Court Forebay would allow Banks Pumping Plant to pump up to its maximum design capacity of about 10,300 cubic feet per second with fewer restrictions. It would also improve the reliability of SWP water supply and increase operational flexibility. In addition, the proposal to construct flow-control structures in south Delta channels would allow the Department and USBR to meet the obligations of a pending agreement with South Delta Water Agency to improve conditions for local agricultural diversions. The fish-control structure would benefit both spring and fall salmon migrations in the San Joaquin River.

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Figure 4-1
Boundaries of North, West, and South Delta Water Management Programs



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#### **Environmental Review Process**

A draft EIR/EIS for the ISDP was released in August 1996; the final EIR/EIS is scheduled for release in mid-1998. Once the final EIR/EIS is completed, a notice of determination and record of decision will be filed. State and federal regulatory agencies may then act on permits required to construct and operate the proposed facilities.

The key permits required will be issued by the Corps according to Section 404 of the Federal Water Pollution Control Act (Clean Water Act) for dredging operations and Section 10 of the Rivers and Harbors Act for navigation. Approval for the permit must be coordinated with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, the Environmental Protection Agency, and the California Department of Fish and Game.

#### **New Temporary Barriers Project**

The Department has installed and operated temporary barrier facilities in the south Delta since 1990 to improve south Delta conditions and collect data needed to design and operate permanent barrier facilities, as proposed in the Interim South Delta Program. Data collected in the Temporary Barriers Program has assessed the barriers' ability to reduce or eliminate adverse water levels and improve local hydraulic circulation patterns.

In addition, biological monitoring programs have been conducted to:

- look at alternative timing patterns for barrier operations;
- determine potential effects of barriers on Delta fish and vegetation;
- evaluate and review computer model calibration; and
- develop comprehensive environmental information for the design and operation of permanent barrier facilities.

Temporary rock barriers are being tested at four sites:

• Old River at head, in Old River where it splits from the San Joaquin River;

Old River near Tracy, in Old River one-half mile east of the Tracy Pumping Plant intake and about 8 miles northwest of the city of Tracy;

- Middle River, just south of the confluence of Middle River, Trapper Slough, and North Canal;
   and
- Grant Line Canal, 420 feet east of the Tracy Boulevard Bridge.

The barrier at the head of Old River prevents San Joaquin River flow from entering Old River and flowing toward export facilities. The additional flow in the San Joaquin River assists in guiding San Joaquin salmon to the ocean in the spring and improves dissolved oxygen levels for upstream salmon migration in the fall. The other barriers have culverts with flap gates that improve water levels and circulation in south Delta channels during the irrigation season.

The Old River at head barrier has been installed in the fall since 1963 and intermittently in the spring since 1992; the Old River near Tracy barrier has been installed since 1991; the Middle River barrier has been installed since 1987. The Grant Line Canal barrier was installed and operated for the first time in July 1996.

#### **Interim North Delta Program**

In fall 1995, the Department suspended Interim North Delta Program planning activities in deference to the ongoing efforts of the CALFED Bay-Delta Program. The CALFED Bay-Delta Program is addressing the issues identified in the INDP in a comprehensive manner, with input from involved stakeholders, regulatory agencies, and cooperating agencies. As a participant in this process, the Department provides logistical and technical support to help assure solutions that are technically and economically sound, so that the large body of information developed as part of the INDP is fully integrated into the CALFED process.

#### West Delta Program

The objectives of the West Delta Program are to effectively manage SWP-owned lands on Sherman and Twitchell islands (approximately 12,000 acres total); improve the integrity of local levees; implement land-use management to control subsidence and

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soil erosion on Sherman and Twitchell islands; implement mitigation requirements associated with the Temporary Barriers Program and proposed Interim South Delta Program; and provide diverse habitat for wildlife and waterfowl.

Other benefits of this program include:

- increased flood control, including protection for highways and utilities;
- additional protection of water quality in the Delta;
- increased reliability of the SWP water supply;
- additional opportunities for recreation in the Delta;
- reduced fish losses;
- improved water quality;
- · increased wetlands and wildlife habitats; and
- increased terrestrial biodiversity.

The Department also contracted with a consultant to develop preliminary wildlife management plans for the two islands. The plans are designed to benefit species of wildlife that occupy wetland, upland, and riparian habitats and to provide recreational opportunities for hunting and viewing. In addition, property acquired and potential habitat developed through the Department could be available as mitigation for impacts associated with current and future Delta water management programs, including those being proposed by the Department and the CALFED Bay-Delta Program.

The Department is a major landowner on both Twitchell and Sherman islands, with two trustees on both Reclamation District 1601 (Twitchell Island) and Reclamation District 341 (Sherman Island). This permits the Department to improve the management and accountability of the operation of both districts. The reclamation districts provide for levee maintenance, island drainage, and some internal water supply. The district has the ability to assess the land for operation of the public districts.

#### **Delta Flood Control Program**

The Sacramento-San Joaquin Delta is one of California's most valuable and irreplaceable resources; without adequate levee protection, the Delta as we know it today would be lost. The levees serve many

diverse needs. They protect valuable wildlife habitat, farms, homes, urban areas, recreational developments, highways and railroads, natural gas fields, utility lines, major aqueducts, and other public developments. The levees are also critical to protecting Delta water quality and serve a significant function in the State's water transfer system. The State Legislature recognized the importance of the Delta following the floods of the early 1980s and enacted the Delta Flood Protection Act of 1988, (SB 34 [Water Code Sections 12310 et seq. and 12980 et seq.]). With SB 34 the Legislature declared that, "...the Delta is endowed with many invaluable and unique resources and that these resources are of major statewide significance."

In SB 34, the Legislature declared its intent to appropriate \$12 million annually through fiscal year 1998-99 for the Delta Flood Protection Fund. Six million dollars of the appropriation are for local assistance under the Delta Levee Maintenance Subventions Program. The remaining \$6 million are for Special Delta Flood Control Projects, including subsidence studies and monitoring on Bethel, Bradford, Holland, Hotchkiss, Jersey, Sherman, Twitchell, and Webb islands, and the towns of Thornton and Walnut Grove. Currently, the program has received over \$86 million in funds and, coupled with local funds, has realized \$115 million in levee improvements. However, State budget cuts have resulted in the program being underfunded by over \$21 million.

# Delta Levee Maintenance Subventions Program

The Subventions Program provides funding, as a reimbursement, to local Delta reclamation districts to assist levee maintenance, repair, and rehabilitation in compliance with the State's Flood Hazard Mitigation Plan objectives. A portion of the levees of northern Suisun Bay are included in the program. Each year, districts that want to participate in the program prepare a work plan and file applications with the State Reclamation Board for funding.

After applications and work plans are reviewed, the Department requests their approval by the Board. The Board is also requested to approve each district's maximum possible reimbursement (up to 75 percent

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for levee work and habitat mitigation) and maximum advanced reimbursement amount based on the program's reimbursement prioritizing scheme and available funding.

Upon Board approval, agreements are executed between the Board and each participating district stating that eligible work will be completed during the fiscal year. All work must be performed in compliance with appropriate State and federal laws including the California Environmental Quality Act, the State and federal Endangered Species Acts, Section 1600 of the Fish and Game Code, Section 404 of the Clean Water Act, and approval by DFG that a net long-term habitat improvement of riparian, fisheries, and wildlife habitat will result.

#### **Special Projects**

The Special Flood Control Projects Program assists the eight western islands, other locations in the Delta and northern Suisun Bay, and the towns of Thornton and Walnut Grove. In July 1989, the Legislature approved a plan of action for flood control for the towns of Thornton and Walnut Grove.

For the eight western Delta islands, the California Water Commission approved a report of initial or "fast-track" actions in September 1989 and approved the long-term actions and priorities in May 1990. The long-term plans are being used by the Department to determine how to best use appropriations to protect the eight western Delta islands. Those protections include: rehabilitating threatened levees through the use of imported dredged material; verifying elevations in the Delta through the use of Global Positioning System equipment; and upgrading levees to the standards included in Bulletin 192-82, *Delta Levees Investigation*.

Some of the projects already completed or in progress through the Special Projects Program include:

- Bethel Island Phase I (1995) 5,200 feet of longterm landside levee improvements;
- Bethel Island Phase II (1995) 5,100 feet of long-term landside levee improvements;

- Hotchkiss Tract Phase I HMP (1996) 2,700 feet of levee improvement to the Hazard Mitigation Plan standard;
- Twitchell Island levee setback (1995) 3,000 feet of levee setback;
- Sherman Island cross levee repair (1995) upgrade to HMP standard;
- Sherman Island long-term levee improvements (1996) - construction of stability berms along portions of levee adjacent to Mayberry Slough and the San Joaquin River;
- Bradford Island (1996) construction of stability berm to address severe cracking and foundation deformation; and
- Webb Tract (1996) 4,400 feet of levee repairs for areas with stability and seepage problems.

#### **Subsidence Investigations**

Organic soils in the Sacramento-San Joaquin Delta have subsided up to 25 feet since the Delta islands were drained in the late 1800s, primarily due to oxidation of the soil organic matter. The Legislature recognized the problem and, with the Delta Flood Protection Act, requested the Department to monitor subsidence and study its causes.

Accordingly, the Department and the U.S. Geological Survey conduct an ongoing subsidence investigation in the Delta. After reviewing preliminary data provided by USGS, the Department concluded that:

- land management practices substantially influence subsidence rates:
- permanent shallow flooding can stop the microbial subsidence processes;
- cultivation practices that raise soil temperature and lower the water table dramatically increase oxidation of the peat soils;
- conversion of highly organic peat soils to carbon dioxide gas appears to be the primary cause of subsidence; and
- the presence of vegetation mats suggests that shallow permanent flooding will reverse subsidence through biomass accretion.

Subsequent research will focus on maximizing soil accretion by growing organic material (tules). A 25-

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acre test area was constructed on Twitchell Island and will be managed to maximize soil accretion.

#### **Upland Relocation of Dredged Material**

As local sources of fill material for levee repair are depleted, new economical sources must be located. The Department, in coordination with the Corps, local reclamation districts, and the Central Valley Regional Water Quality Control Board, implemented three pilot projects to demonstrate the viability of relocating material from the San Francisco Bay Area.

The first project on Sherman Island (Reclamation District 341) used about 1,600 cubic yards of sediment dredged from Suisun Bay as part of a 2,500-cubic-yard experimental toe berm. The berm was built on the toe of a levee reach along the San Joaquin River. As a condition of allowing the import of dredged sediment from the San Francisco Bay area to Sherman Island for levee rehabilitation, the CVRWQCB required an extensive program of soil and water monitoring. No soil or water quality problems were found.

The second project on Twitchell Island (Reclamation District 1601) transported about 50,000 cubic yards of sediment to the island. The sediment was dredged from Suisun Bay, transported from the Corps' storage site on Simmons Island, and used as part of a major rehabilitation of the San Joaquin River levee on Twitchell Island. The dredged sediment was used with the permission of the CVRWQCB, which required, as a condition for its approval, that a water quality monitoring program be undertaken on Twitchell Island. No adverse salinity impacts have been measured.

A third project, the Jersey Island Demonstration Project, consisted of levee-stabilizing berms using about 65,000 cubic yards of sediment dredged from navigation channels in Suisun Bay and New York Slough. The project entailed extensive cooperation and planning among the Department, the Corps, Reclamation District 830 on Jersey Island, and DFG. In addition, the CVRWQCB required a very extensive and expensive monitoring and testing program as part of the waste discharge permit issued for the project. The monitoring and reporting required by the CVRWQCB have not identified any adverse impacts.

Currently, the Special Projects Program is being coordinated with the CVRWQCB and the Long-Term Management Strategy to develop dredge material re-handling facilities on Sherman Island. The intent of these sites is to establish monitoring programs so that all LTMS dredging adjacent to these sites will be stockpiled for later use in levee improvement projects.

#### **Levee Upgrades**

The Department is funding upgrades to the levees according to standards contained in Bulletin 192-82, *Delta Levees Investigation*. According to those standards, the agricultural levees must be raised to provide 1.5 feet of freeboard for a 300-year flood and widened to a 16-foot crown width, with a waterside slope of at least 3 horizontal to 1 vertical.

#### **Clean Water Act**

Section 404 of the Federal Water Pollution Control Act (Title 33, United States Code Section 1344 [1977]), also known as the Clean Water Act, requires that a permit be obtained from the U.S. Army Corps of Engineers for any activity that results in discharge of dredged material or placement of fill material in the waters of the United States. Section 404 has been broadly interpreted by the federal courts to include structures or fills introduced into waters within a state that may be used for interstate or foreign commerce. Section 402 of the Clean Water Act established a permit system known as the National Pollutant Discharge Elimination System to regulate point sources of discharges in navigable waters of the United States.

The Porter-Cologne Water Quality Control Act is California's comprehensive water quality control law and is a complete regulatory program designed to protect water quality and beneficial uses of the State's water. In 1972, the Porter-Cologne Act was amended to give California the authority and ability to operate the NPDES permits program. These laws require regional water quality plans to be adopted and implemented by issuing waste discharge requirements to each discharger of waste that could impact the waters of the State.

In August 1991, the Corps, the State Reclamation Board, and the Department signed a feasibility costsharing agreement for a special study of the Sacramento-San Joaquin Delta. Updating an earlier 1982 study, the 1991 special study provides for investigating solutions for Delta flood protection, salinity Chapter 4 Delta Resources

intrusion, recreation, and navigation. In accordance with the Water Resources Development Act of 1986 and the federal policy of incurring no net loss of habitat, the 1991 study includes environmental and wild-life habitat restoration measures. The study will also consider the Department's management plans for water supply and flood control when developing alternatives for a comprehensive Delta plan.

#### **U.S. Army Corps of Engineers**

In addition to its historical leadership in flood control, the U.S. Army Corps of Engineers regulates structures or work affecting navigable waters of the United States according to Section 10 of the Rivers and Harbors Act (Title 33, United States Code, Section 403 [1899]) and any activity which results in discharges of dredged or fill material into waters of the United States (which includes wetlands) according to Section 404 of the Clean Water Act.

#### U.S. Bureau of Reclamation

The U.S. Bureau of Reclamation manages the operation of the Central Valley Project and shares with the Department responsibilities for meeting water quality and flow objectives in the Delta. The Central Valley Project delivers about 7 million acre-feet of water a year to contractors in the Sacramento and San Joaquin valleys and parts of the San Francisco Bay area. Under the requirements of the CVP Improvement Act, USBR also supplies water for fisheries and wildlife refuges in the Central Valley.

Because the Department and USBR share Delta responsibilities, the Department coordinates SWP operations with USBR according to terms and conditions of the Coordinated Operation Agreement, signed in 1986. That agreement replaced an earlier system of year-to-year agreements regarding the responsibilities of the Department and USBR in the Delta. The COA is significant in that the federal government agreed to accept a significant portion of responsibility for meeting the State Water Resources Control Board's water quality requirements for the Delta with certain restrictions as to limitations of State and federal authorities.

The special study is divided into two phases. Phase I began in September 1991 and ended in March 1993. The Phase I report, called the Initial Report, describes problems, possible solutions, and opportunities to improve and/or provide flood protection, fish and wildlife habitat, water quality, recreation, and navigation. The Initial Report included a plan that identifies existing and future land uses in years

2000, 2020, and 2040. The report also included a discussion on developing a comprehensive plan, primarily for flood control, navigation, and environmental restoration. Phase II is due to go to construction in June 1998.

Phase II of the special study is in progress. In Phase II, a Regional Planning Report for environmental restoration, flood control, and navigation is to be developed. The purpose of this report is to develop a region-wide plan for the Corps involvement in the Delta that links with the planning efforts of others. The Regional Planning Report will incorporate and be closely coordinated with the long-term policies and plans of CALFED. Other Phase II efforts are to:

- design and construct a levee test section;
- study borrow material sources; and
- study dredge material reuse.

In addition, a planned joint program will investigate other reuse opportunities and technical studies of sediment traps, water quality effects of sediment reuse, subsidence control, and habitat restoration. These studies will demonstrate the value of sediment reuse and will continue to build momentum for developing solutions to Delta problems, particularly for flood control issues.

### **Delta Water Rights Management**

Several agencies in the western Delta have rights to usable water in the Delta. To manage those water rights and resolve issues associated with them, the Department negotiated water rights management contracts with some of the agencies concerned. Those agencies serve agricultural, municipal, and industrial users of Delta water.

#### **Delta Agricultural Water Users**

In 1974, the Delta Water Agency was replaced by six Delta agricultural water agencies—North Delta Water Agency, South Delta Water Agency, Central Delta Water Agency, East Contra Costa Irrigation District, Contra Costa County Water Agency, and Byron-Bethany Irrigation District. Two of those agencies—North Delta Water Agency and East Contra Costa Irrigation District—signed water rights management contracts with the Department in 1981.

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#### South Delta Water Agency v. United States, et. al.

In 1982, the South Delta Water Agency filed suit in Federal District Court for the Eastern District of California against the United States, the Department of the Interior, the U.S. Bureau of Reclamation, and the Department. This case involves the effects of operations by the Central Valley Project (operated by the USBR) and the State Water Project on the SDWA service area, and the effect of the Department of Interior's designation of the boundaries of the New Melones Reservoir service area as not including the SDWA service area. In its suit, SDWA asked for declaratory and injunctive relief, which, if granted, would have restricted certain Delta operations.

The United States and the SDWA settled the agency's motion for preliminary injunction to prevent the United States from signing contracts for New Melones water. The motion was settled by parties agreeing to a stipulation that any contracts entered into by the United States are subject to any superior rights in the southern Delta that are determined in this litigation. In October 1986, the USBR, the Department, and the SDWA signed a framework agreement to settle the lawsuit. The parties agreed to work together to develop mutually acceptable, long-term solutions and to stay all actions in the litigation while negotiating a settlement.

In August 1990, a draft agreement for settlement of the lawsuit was completed. The proposed settlement includes provisions for constructing, operating, and maintaining temporary (and later permanent) barriers in south Delta channels to improve water levels and circulation. In addition, according to the contract, USBR will take interim actions to improve the quality and quantity of water that flows into the south Delta from the San Joaquin River. The Department and the SDWA are authorized to sign the agreement. USBR is currently seeking Congressional authorization to sign the contract. The Department has proceeded with designing, constructing, and operating the temporary barrier facilities as part of the testing program included in the proposed contract. USBR and the Department will share equally the costs associated with the barrier facilities.

The Department also negotiated contracts, or is requesting negotiations, with other agencies to provide for water level, circulation, and quality needs in certain areas.

#### **South Delta Water Agency Contract**

In September 1990, the Department completed negotiations for a long-term agreement with the SDWA and USBR. The Department and SDWA are authorized to sign the agreement. USBR is currently seeking Congressional approval to sign the agreement, which includes provisions to address SDWA concerns about the quality of water entering SDWA through the San Joaquin River system.

Under the proposed SDWA contract, the parties agree to proceed with the design, construction, and operation of certain barrier facilities in the channels of the south Delta. The facilities resolved those portions of the lawsuit that SDWA filed in 1982 regarding the alleged effects of export pumping by the SWP and/or the Central Valley Project on water levels, quality, and circulation in the south Delta.

Since 1990, the Department has installed and operated temporary barrier facilities in the south Delta to improve south Delta conditions and collect data needed to design and operate permanent barrier facilities as proposed in the Interim South Delta Program.

Data collected in the Temporary Barriers Program has assessed the barriers ability to reduce or eliminate adverse water levels and improve local hydraulic circulation patterns.

In addition to providing for barrier facilities, the proposed agreement between the Department, SDWA, and USBR defines amounts of certain interim releases from New Melones Reservoir and other related actions to be taken by USBR. Those measures will provide a temporary solution to a portion of the 1982 litigation concerning San Joaquin River flows and water quality measured at Vernalis.

#### Western Delta Industrial Water Users

Some industries near the cities of Antioch and Pittsburg in the western Delta use offshore water in their manufacturing process. When offshore water quality falls below the industries' requirements, a substitute supply is provided through the Contra Costa Canal.

According to terms of a contract executed in 1987, the Department makes payments to the operator of a mill located in the western Delta, Fibreboard Corporation and its successors (now Gaylord Container Corporation), when water suitable for the mill's use is not available for a calculated number of days during the water year. If water is deemed suitable for fewer than the number of days to which Gaylord is entitled,

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the Department compensates Gaylord for added costs of purchasing a substitute water supply and treating water needed to operate the mill. According to the Department's initial interpretation of the contract provisions, the Department has made payments to Gaylord totaling \$2,621,339.58.

On November 19, 1991, the Department negotiated an agreement with Gaylord Corporation regarding another mill Gaylord owns, downstream of the mill purchased from Fibreboard. The provisions of that agreement are similar to those contained in the 1987 water entitlement agreement, and payments to date were \$386,776.30.

Determination of Payments. The contracts contain a chart based on the relationship between the Sacramento River Index and the number of days the corporation is entitled to water of suitable quality. Days for payment is the difference between the entitlement days and actual days of suitable quality. The payment formula is the same in both contracts except for one factor relating to the method of obtaining water from the San Joaquin River. The second mill incurs no measurable pumping costs when taking process water from the river.

There was an unresolved disagreement regarding interpretation of the contract and Gaylord filed a suit

in the Sacramento Superior Court (see Chapter 8). In January 1996, a settlement was reached. The parties agreed to dismiss the lawsuit and resolve all outstanding issues by canceling the contract. This contract covered the Department's payment of \$3,000,000 to satisfy and discharge the Department's obligations to Gaylord for water quality and water supply. If the Fiberboard plant reopens and is in full operation by January 18, 2003, the additional amount of \$2,500,000 would be payable to Gaylord.

#### **Western Delta Municipal Water Users**

To compensate the Contra Costa Water District and the City of Antioch for purchasing water of usable quality when such water is not available offshore in the Antioch-Pittsburg area, the Department signed contracts with those agencies in 1967 (Contra Costa Water District) and 1968 (City of Antioch).

According to terms of the contracts, the Department compensates each agency for additional costs of purchasing a substitute water supply from the Contra Costa Canal to replace offshore water supplies of usable quality lost because of SWP operations. Credits for the number of days of above-average offshore water supplies of usable quality accrue to offset the number of below-average days in future years.

Information in this chapter was contributed by the Division of Planning and Local Assistance and the Central District.

# Chapter 5 **Environmental Programs**



Red-tailed hawk

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# **Significant Events**

- The Department released the Draft Environmental Impact Report for the SWP Supplemental Water Purchase Program in February 1997.
- The Department and the U.S. Bureau of Reclamation, in consultation with State and federal fishery agencies, shifted some of the Delta exports from the spring to the fall to protect delta smelt and chinook salmon. USBR also closed the Delta Cross Channel Gates in November 1996 to protect out-migrating winterrun and other salmon smolts.
- The California Department of Fish and Game approved and the Department began implementing six new fishery projects to offset fish losses at Banks Pumping Plant.
- The U.S. Fish and Wildlife Service and the National Marine Fisheries Service postponed decisions for listing the Sacramento splittail and

- the Central Valley populations of chinook salmon and steelhead as threatened or endangered species under the federal Endangered Species Act until after late 1997. The California Fish and Game Commission decided the springrun salmon did not warrant listing under the California Endangered Species Act in 1996, but the decision was overturned in the courts.
- The high-flow fish evaluation study in the low-flow section of the Feather River began October 10, 1996. Increased flows of about 1,600 cfs were monitored by Environmental Services Office staff to evaluate effects on salmon spawning. A corresponding reduction in Thermalito Afterbay River Outlet releases was made to maintain the Feather River at about 2,400 cfs. The study was planned to continue until January 16, 1997, but was canceled because of heavy December storms that required very high releases.

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he Department of Water Resources has developed several programs and taken measures to avoid, minimize, or offset adverse impacts that might result from construction and operation of State Water Project facilities. These programs and measures are undertaken in addition to the environmental documentation and mitigation activities required to obtain approvals for any additional project facilities.

#### **Water Transfers**

A Draft Environmental Impact Report for the Supplemental Water Purchase Program was released for public review in February 1997. The proposed program would enable participating contractors to purchase up to 400,000 acre-feet of water from groundwater substitution and surplus surface supplies to meet their Table A entitlement in any given year through the year 2002. The draft EIR addresses potential environmental impacts related to groundwater substitution, fisheries in the Delta, reservoir releases, tributary flows, and possible impacts to reservoir-related recreation. Because of public concerns over the draft EIR, the Department held several additional public workshops on the program and extended the public comment period into the summer of 1997. Comments received were highly critical of the groundwater pumping component of the program. Subsequently, the groundwater pumping component was removed, leaving only reservoir storage as a possible source of water under this program.

# **Real-Time Monitoring**

One of the principles of the December 15, 1994, Delta Accord states that: "To the maximum extent possible, real-time monitoring will be used to make decisions regarding operational flexibility." In 1996, efforts were devoted to refining the real-time fishmonitoring program in the Delta, along with an associated process to use the data in assessing the need to modify water project operations in the spring.

Monitoring fish in the Delta on a real-time basis means collecting fish distribution and abundance data and providing an interpretation of that data within 36 hours of initial collection. Specific goals of the 1996 real-time monitoring program were to:

- refine the logistics of collecting and processing data in a real-time mode;
- determine if the movement of chinook salmon smolts, delta smelt, and splittail through the Delta can be followed and predicted;
- determine if predictable relationships exist between fish catches in the sampling program and fish salvage at the CVP and SWP;
- determine if the movement of fish and water are related and what factors may affect this relationship; and
- provide information to facilitate decisions regarding water project flexibility.

In 1996, operation of the field and data reporting aspects of the program and preparation of daily summary reports were carried out by the Data Review Team.

During real-time monitoring, data collection was accomplished through an intensive sampling program from April 1 through June 30. The program consisted of three parts:

- enumeration of fish salvaged at the CVP and SWP fish facilities;
- · daily sampling at 13 sites in the Delta; and
- biweekly, Delta-wide fish distribution surveys, targeting juvenile fish.

Another group, the Data Summary Team, monitored results of the field data along with salvage counts from the State and federal export facilities. Based on the available information, the Data Summary Team prepared recommendations designed to minimize the impacts of water project operations on fish. Data Summary Team recommendations were forwarded to the CALFED Operations Group for its use in making decisions about water project operations.

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#### **Uses of Real-Time Monitoring**

In 1996, monitoring at the SWP and CVP showed high salvage levels of delta smelt during May and June. However, daily sampling at the 13 Delta sites and biweekly survey results both showed the delta smelt population was concentrated around Chipps Island by early May. This distribution held through May and June, bolstered by high spring outflow. As a result, no operational response was necessary during the period of elevated salvage. These results also indicated the lack of a predictable relationship between fish catches in the sampling program and fish salvage at the CVP and SWP export facilities.

# **Biological Opinions and Other Operational Considerations**

In most years, the delta smelt spends its entire life cycle in the Delta and Suisun Bay and can therefore be affected by project operations. Juvenile winterrun chinook salmon passing through the estuary on their way to the ocean may be impacted by: (1) project-induced changes in Delta flow patterns; and (2) direct losses at the pumps. The Department and USBR coordinated the project's operations to meet the requirements in the National Marine Fishery Service, U.S. Fish and Wildlife Service, and the Department of Fish and Game biological opinions for winter-run salmon and delta smelt.

These State and federal biological opinions determined that the project pumping, Delta outflow, and other operational criteria stipulated in the 1994 Principles for Agreement include all the Delta actions needed to avoid jeopardizing the two species. They also specify the level of incidental take of these species that is permitted before the Department and USBR are to reconsult and assess if additional actions are needed to reduce take. The winter-run take is determined at each smolt out-migration season and is based on a percentage of the estimated winter-run smolts out-migrating that year. The delta smelt take is specified by month and by two water year types (i.e., wet/above-average and below normal/dry/ critical), based on historical salvage at the SWP and CVP fish screens.

#### **Pumping Curtailments**

Between April 15 and May 15, 1996, USBR and the Department coordinated the operation of their south

Delta pumping plants to meet a ratio between the flow of the San Joaquin River at Vernalis and their combined diversions of approximately 4:1, an objective of the draft Anadromous Fish Restoration Program developed under the Central Valley Project Improvement Act. This objective was originally proposed by the USFWS as a use of the so-called "(b)(2) water" under Section 3406(b)(2) of the CVPIA. Substantial disagreement within the stakeholder community developed about the propriety of using (b)(2)water for additional Delta outflow above the level required in the Bay-Delta Accord. While the Department of the Interior believed that such use of (b)(2) water could be appropriate, a decision was made not to use (b)(2) water in 1996 to meet the 4:1 objective. USBR elected to use the flexibility afforded under SWRCB Water Right Order 95-6 to conduct the export reduction with the understanding that efforts would be made to make up the water in the fall. The Department voluntarily assisted in implementing this operation, which resulted in lower combined exports than would have occurred under the Water Quality Control Plan as adopted in WR Order 95-6. The 4:1 objective also resulted in lower exports than suggested by the Vernalis flow and export ratio objective contained in the USFWS revised (March 6, 1996) biological opinion for the protection of delta smelt.

#### U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service, an agency within the Department of the Interior, has the mission to "conserve, protect and enhance fish, wildlife and their habitats for the continuing benefits of the American people." Among the responsibilities of USFWS is administration of the federal Endangered Species Act to provide protection for terrestrial and aquatic plants and animals, except anadromous fish. USFWS also works with federal, State, and local agencies and interests in matters regarding wetland protection.

Within California, USFWS is responsible for biological opinions, critical habitat, and recovery plans for such threatened and endangered species as the delta smelt. Biological opinions issued by USFWS, particularly the delta smelt opinion, significantly affect SWP and CVP operations. Close interagency coordination is required to operate the projects in conformance with the biological opinion. The Department also works with USFWS to minimize environmental impacts related to SWP maintenance.

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During the period May 16 through 24, 1996, USBR and the Department also coordinated their south Delta pumping operations to reduce their combined take of delta smelt. Together they provided a ramping or transition from the lower rates of export during the April 15 to May 15 pulse period to the higher rates possible under the prevailing export/inflow criterion of 35 percent. During this ramping period, about 11,000 acre-feet of CVP water was pumped by the SWP to reduce the overall impact on CVP exports. These actions were taken after consulting with USFWS and its delta smelt working group.

Overall, the CVP, with the Department's cooperation, reduced its south Delta exports about 130,000 acrefeet in spring 1996 to protect fish. Of this, about 64,000 acre-feet was used to meet the delta smelt biological opinion's San Joaquin River pulse flow objective; 42,000 acre-feet was used for additional voluntary reductions to meet the draft AFRP objective for the 4:1 ratio; and 24,000 acre-feet was used for the May 16 to 24 ramping to reduce take of delta smelt. These amounts were recovered in the fall under the terms of WR Order 95-6.

#### **National Marine Fisheries Service**

The National Marine Fisheries Service has primary responsibility for the conservation, management, and development of living marine resources and for the protection of certain marine mammals and endangered species under numerous federal laws. As a federal agency within the U.S. Department of Commerce, NMFS has responsibilities to the commercial and marine recreational fishing industries and to the general public. NMFS also administers the federal Endangered Species Act with respect to marine and anadromous species such as the winter-run salmon. The mission of NMFS is to "achieve a continued optimum utilization of living marine resources for the benefit of the nation."

NMFS issues biological opinions, critical habitat designations, and recovery plans on winter-run chinook salmon and other anadromous salmonids in California and ensures that conditions specified in these opinions are met by the responsible agencies, including the Department of Water Resources.

The final estimate of winter-run-sized salmon take (October 1, 1995, through May 31, 1996) was 7,353 smolts, greater than the 1996 incidental take statement level of 3,301 smolts. NMFS concluded that no operational changes were needed during the year, however, because most of the smolts associated with the high take were predominately fall-run salmon that had grown faster than in other years due to warmer water temperatures. Therefore, no take-related pumping curtailments were required during 1996 for winter-run chinook salmon protection since incidental take was deemed less than specified in the incidental take statement.

The 1995 delta smelt biological opinion specifies a 14-day running average and monthly total take levels. On May 16, 1996, the monthly take was exceeded, triggering formal reconsultation between the Department, USBR, USFWS, and DFG. The agencies decided to breach the head of Old River fish barrier and shift a portion of the CVP diversions to SWP facilities (as mentioned above) where lower densities of smelt were present. The barrier was breached on May 16, 1996.

#### **Delta Cross Channel Standards**

The winter-run chinook salmon biological opinion and May 1995 amendment, as well as the SWRCB Water Quality Control Plan, address operation of the Delta Cross Channel gates. From November 1 through January 31, the gates may be closed upon request by the fishery agencies for a total of 45 days if migratory juvenile salmon are present. The gates must be closed between February 1 and May 20. Between May 21 and June 15, Delta Cross Channel gates are to be closed for 4 consecutive days each week, excluding weekends. No Delta Cross Channel operational measures were specified in the 1995 delta smelt biological opinion.

Delta Cross Channel gates closed on November 12, 1996, at the request of fishery agencies to create desired hydraulic conditions to reduce the movement of winter-run salmon smolts into the central Delta where mortality was thought to be high. The Cross Channel gates were reopened November 15 and closed again November 20. They remained closed until the following spring.

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# Sacramento and San Joaquin River Flow Requirements

The winter-run biological opinion amendment (May 1995) and long-term delta smelt biological opinion (March 1995) refer to the 1994 Principles for Agreement and SWRCB draft Water Quality Control Plan for river flow requirements. These documents stipulate that the base flow from the Sacramento River is to have a minimum monthly average flow rate that varies by month and depends on water year type. For example, during September through December, a minimum flow of 3,000-4,500 cubic feet per second is required past Rio Vista. A pulse flow is also provided in April and May to move delta smelt larvae spawned on the San Joaquin River to suitable rearing habitat in Suisun Bay.

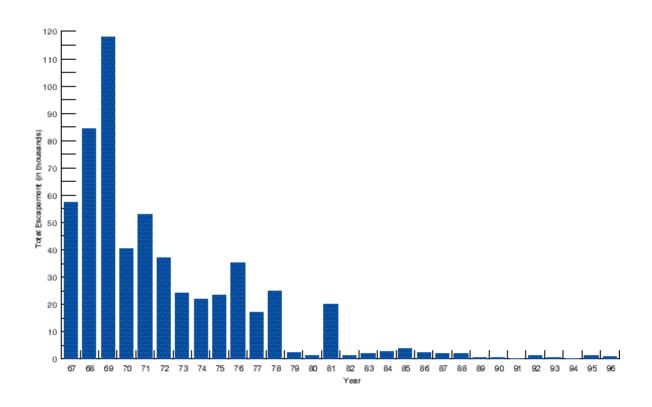
As indicated in the preceding sections, the distribution and abundance of threatened and endangered fish have been an increasingly important factor in determining SWP and CVP operations. They are particularly important in years when their distribution is limited or concentrated near the south Delta pumping plants, and in years when overall abundance is low.

#### **Population Estimates**

Figure 5-1 shows estimates of returning adult winterrun chinook salmon through 1996. The estimated escapement for 1996 was 940, which more than replaced the estimated 341 adults in the parent stock of 1993.

Figures 5-2 and 5-3 show abundance trends of delta smelt through 1996 for the fall midwater trawl and summer tow-net indexes. In 1996, a low summer index was followed by an even lower fall index, suggesting the population of adult delta smelt declined through 1996. By contrast, in 1995, a low summer index was followed by the seventh highest fall index on record. Scientists do not know what causes these variations that occur within and between years.

Figure 5-1
Estimated Total Winter-Run Chinook Salmon Escapement, 1967 through 1996



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Figure 5-2
Delta Smelt Fall Midwater Trawl Abundance Indexes, 1967 through 1996

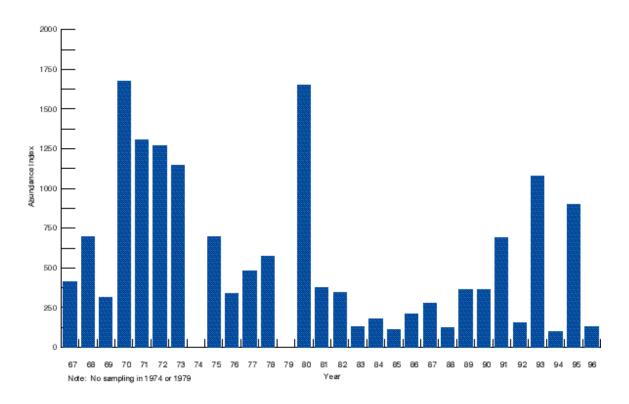
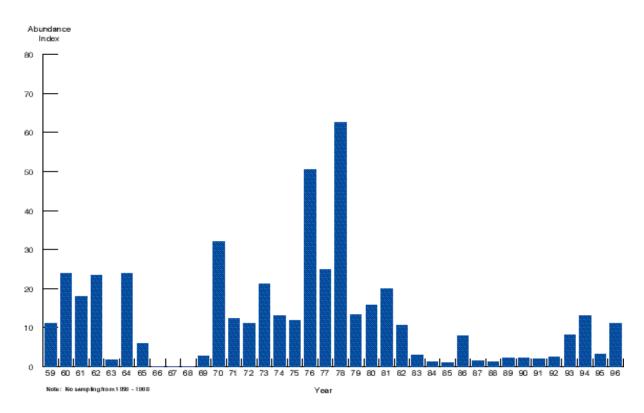


Figure 5-3
Delta Smelt Summer Tow-Net Indexes, 1959 through 1996



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Figure 5-4 shows the fall midwater trawl indexes for Sacramento splittail for the period 1967-1996. Results for 1996 were a clear improvement over low indexes during the recent 6-year drought. However, it was lower than the exceptionally high splittail abundance of 1995, when record or near-record levels were observed for most of the splittail abundance indexes.

#### **Petitions for Additional Listings**

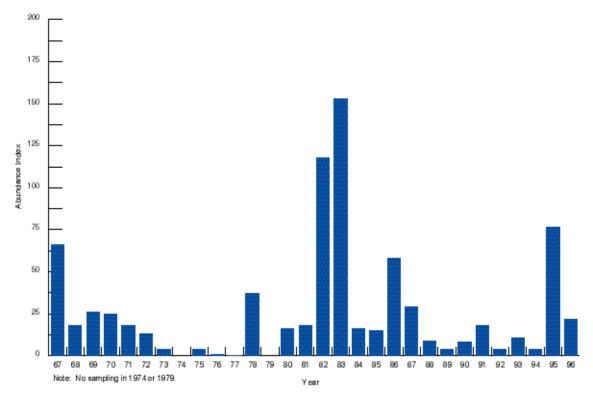
Federal fish and wildlife agencies are considering petitions to list additional fish species as threatened or endangered. Listing would increase the emphasis that these species would be given in determining project operations. The USFWS decision to list splittail as threatened was postponed until at least late 1997. NMFS may act on coastwide petitions to list steelhead trout in 1997 and chinook salmon in 1998. In March 1996, the California Fish and Game Commission concluded that there was insufficient evi-

dence to support the listing of spring-run salmon as endangered. This decision was challenged and overturned by the courts. The Commission reconsidered its decision in June 1997.

### Georgiana Slough Acoustical Barrier

Past studies conducted under the auspices of the Interagency Ecological Program demonstrated that juvenile Sacramento Valley chinook salmon migrating toward the ocean are more likely to survive if they stay in the main river channel when moving through the Delta. Those juveniles leaving the Sacramento River by way of the Delta Cross Channel or Georgiana Slough appear to survive at about one-half the rate of those staying in the river. Survival is indexed by releasing large groups of specially tagged fish at various locations in the river and recovering some of the tags from netting fish downstream of the Delta (near Chipps Island) and from the ocean fishery. The winter-run biological opinion requires that

Figure 5-4
Splittail Abundance Index, Fall Midwater Trawl, 1967 through 1996



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the Delta Cross Channel gates be closed during the period when winter-run juveniles are actively swimming downstream. This closure also protects a portion of the late-fall, spring, and fall runs.

Between 1993 and 1996, the Department and USBR funded a study to determine if more out-migrating salmon could be kept in the main channel by an acoustical barrier across the mouth of Georgiana Slough. With assistance from the San Luis and Delta-Mendota Water Authority, the Department and DFG conducted these studies through the IEP.

Results of the 1993 and 1994 studies indicated that the acoustical barrier appeared to deter juvenile salmon from entering the slough. Studies in spring 1996, a high-flow year, did not show any differences in guidance with the same array alignment. The barrier was not installed in spring 1995 due to excessive flows. The guidance efficiency appears to vary with flow and tidal stage and is highly variable with increasing flows in the river. Lower average daily river flows on the Sacramento River have shown efficiencies above 50 percent, while higher river flows (above 20,000 cfs at Freeport) have not shown any significant effect.

Extensive field and laboratory tests have been conducted on both juvenile and adult fish to investigate the effects of sound exposure. Agencies have not been so concerned with exact guidance efficiencies, but with the possible negative effects sound may have on the area. To date, no significant negative effects have been found. This work included investigations on delta smelt, chinook salmon, and other fish. Barrier operations in the fall of 1994 and 1995 were used to evaluate the potential delay in migration of adult salmon.

Due to the potential for juvenile salmon guidance in low-flow years, the barrier may be reinstalled for further tests in spring 1998 or later, when flows are below normal.

### **Skinner Fish Protective Facility**

The Skinner Fish Facility is located between Clifton Court Forebay and Banks Pumping Plant at the

intake to the California Aqueduct. It is an original feature of the SWP, built to salvage fish from water being pumped from the Delta. Salvaged fish are transported by truck to release sites where they are less likely to return to the vicinity of the pumps in the southern Delta.

The Department has significantly improved the fish protective facilities since their construction in the mid-1960s. In the early 1980s, the screens themselves were improved and a new secondary screening system was added. In the late 1980s, the Department began work on a holding tank building to improve efficiency of the fish salvage process and reduce stress (and losses) of the salvaged fish. The new holding tanks are operational and provide fish protection and flexibility for the Department to comply with requirements of the biological opinions for delta smelt and winter-run chinook salmon.

The Department will continue to investigate and implement operational and structural improvements as appropriate. The nearby federal Tracy Fish Facility will conduct a series of biological and hydraulic tests to evaluate possible improvements to its secondary screening and fish holding system in 1998 and beyond. The Department will participate in these evaluations and determine whether similar changes should be implemented at the Skinner Fish Facility.

# **Mitigation Projects**

In 1986, the Department and DFG signed an agreement to mitigate for the direct losses of fish at the intake to the Aqueduct. Since 1986, the agreement annually provides funds to implement fishery projects to replace fish lost at the intake facilities. It also provides \$15 million for additional projects to compensate for substantial losses prior to 1986. Although the agreement focuses on chinook salmon, striped bass, and steelhead, it also considers other fish. Since 1986, the Department has spent a total of \$17 million on mitigation projects developed under this agreement, which includes improving salmon spawning and rearing habitat, planting hatcheryreared striped bass, and implementing a conjunctiveuse project to improve salmon migration in Mill Creek (Tehama County).

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In 1996, DFG and the Department amended the agreement to: (1) provide an additional 5 years to spend the remaining \$9 million of the \$15 million lump sum provided in the agreement; and (2) specify the likely location of the remaining funds. Because of difficulties in developing mitigation projects, the Department could not spend the full \$15 million in the 10 years required by the original agreement. The remaining funds were tentatively allocated to provide:

- \$2 million for screening diversions in Suisun Marsh:
- \$1 million for predator-isolation projects on San Joaquin River tributaries;
- \$2 million for a conjunctive-use project to improve spring-run salmon migration in Deer Creek (Tehama County); and
- \$4 million for a salmon conservation hatchery on the Tuolumne River.

Other mitigation projects approved in 1996 for implementation from the agreement's annual and \$15 million funds include:

- increased game law enforcement to better protect spring-run salmon in the upper Sacramento River and tributaries;
- design and construction of several fish screens and ladders on Butte Creek to improve survival of migrating salmon, particularly the spring-run, and steelhead;
- stocking 100,000 yearling striped bass;
- planning and constructing several salmon habitat projects on the Stanislaus, Tuolumne, and Merced rivers to improve salmon survival by eliminating predator habitat from rearing areas and migration pathways and by improving salmon-spawning habitat;
- constructing seven fish screens in the Suisun Marsh; and
- operating a pen to acclimate hatchery-reared salmon during their release into San Francisco Bay to improve their survival.

#### **Feather River Fish Studies**

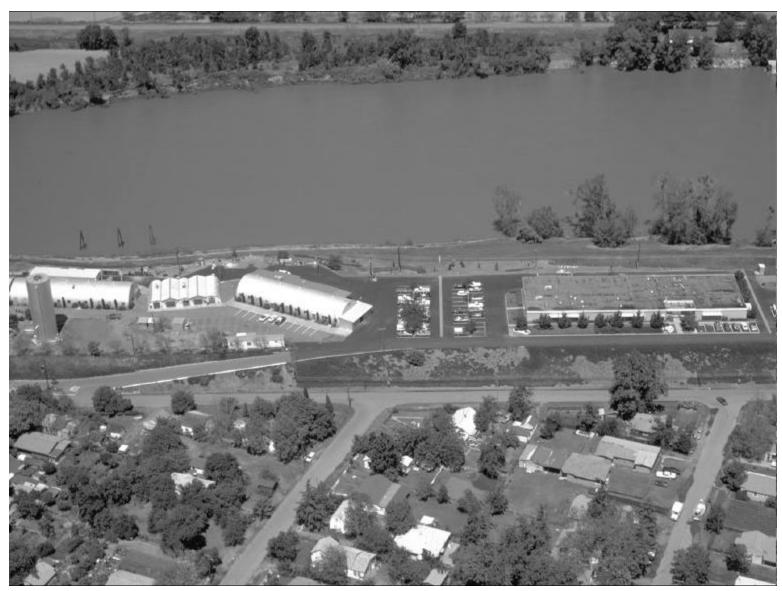
Joint Department and DFG salmon studies continued in 1996 on the lower Feather River and Feather River Hatchery. These studies will help support the Department in the upcoming process to renew the FERC license for the Oroville facilities.

As in 1995, studies were performed in 1996 to evaluate the effects of increased flows in the low-flow section of the river on salmon spawning. Flows were increased from the usual level of 600 cfs to 1,600 cfs during the salmon spawning and early rearing period. Higher flows could potentially increase the amount of spawning habitat, but would result in lost powergenerating capacity because the flows bypass the turbines.

Unfortunately, the 1996 study was disrupted by flood releases in December and January. As a result, Department staff focused their efforts on analyses of the 1995 study data and historical data. Initial results suggest that superimposition of spawning is a major problem in the river, particularly in the low-flow channel. Superimposition occurs when salmon spawn repeatedly in the same location, digging up previously deposited eggs and smothering other nests, resulting in decreased egg survival. This type of excessively localized spawning activity appears to be related to salmon density, but also to flow distribution. It appears that a higher proportion of flow from the low-flow channel may attract more salmon to the upper reach of the river, exacerbating superimposition problems. This effect may cancel out benefits from increased spawning area that is available at higher flows. A yearly trend toward higher densities of salmon spawning immediately downstream of Feather River Fish Hatchery also suggests that hatchery operations may also play a role. This hypothesis will be tested in the coming years using results from a tagging program at the hatchery. Hundreds of thousands of coded-wire tagged juvenile salmon are being released into the Feather River and estuary to evaluate their distribution and survival.

Information in this chapter was contributed by the Environmental Services Office.

# Chapter 6 Water Quality Programs



Aerial view of Bryte Laboratory

# **Significant Events**

- The Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Estuary (1995 Bay-Delta Plan) guided the operations of the SWP in the Sacramento-San Joaquin Delta. The CALFED Operations Group (CVP/SWP Operations-Endangered Species Coordination Group) provided guidance and plans of operation that incorporated a real-time monitoring program for the benefit of estuarine habitat and biota.
- Water quality testing was conducted at the California Aqueduct along with dredging of large

- quantities of sediment brought into the Aqueduct during 1995 storms. Test results indicated that the dredging activity had little or no influence on downstream water quality.
- In 1996, the benthic-monitoring program expanded from six to ten sites to sample a wider range of benthic-habitat types throughout the Delta and Suisun and San Pablo bays. As a result of the more environmentally-diverse sampling, several new benthic species were added to the species list.

any Californians rely on the State Water Project for part or all of their daily water needs. Water for agriculture, industry, power generation, recreation, and fish and wildlife needs also comes from the SWP. The Department monitors SWP water quality throughout the system, using an automated network of continually operating recorders and laboratory analyses of field samples collected weekly, monthly, quarterly, or annually.

### **Delta Activities**

The State Water Resources Control Board sets water quality objectives for various beneficial water uses; the Department of Health Services establishes maximum contaminant levels for treated drinking water. Additional contractual water quality objectives at points of delivery are set by Article 19 of the long-term SWP water supply contracts. Water quality in the Delta and Suisun Marsh is protected under the SWRCB Decision 1485, as amended by Water Right Orders 95-1 and 95-6, to be consistent with the *Principles for Agreement on Bay-Delta Standards* (December 15, 1994).

The *Principles for Agreement*, formulated by CAL-FED and representatives of several urban, agricultural, and environmental groups, are intended to be effective for 3 years until the adoption of final Delta water quality standards. The Agreement established new outflow standards, modified implementation of the Endangered Species Act to increase water project operations flexibility, and contained a funding mechanism for nonflow related measures (Category III).

Both the CVP and SWP operate in accordance with biological opinions for winter-run chinook salmon and delta smelt. The opinions for winter-run salmon and delta smelt were revised May 17, 1995, and March 6, 1995, respectively, to conform with the 1994 *Principles for Agreement*.

The Department conducts extensive monitoring activities to protect beneficial uses of water in the Delta and Suisun Marsh as required by SWRCB D-1485, amended by WR 95-6, that included some but not all of the water quality objectives put forth in the SWRCB's 1995 Water Quality Control Plan. The

Department and the U.S. Bureau of Reclamation agreed to operate under the *Principles for Agreement* shortly after its release in December 1994. In addition, National Marine Fisheries Service and U.S. Fish and Wildlife Service, through ESA, issued operations criteria for the SWP and CVP. Figure 6-1 shows water quality monitoring sites throughout the Sacramento-San Joaquin Delta.

### **Water Supply Conditions**

# Water Year Classifications and Water Supply Indexes

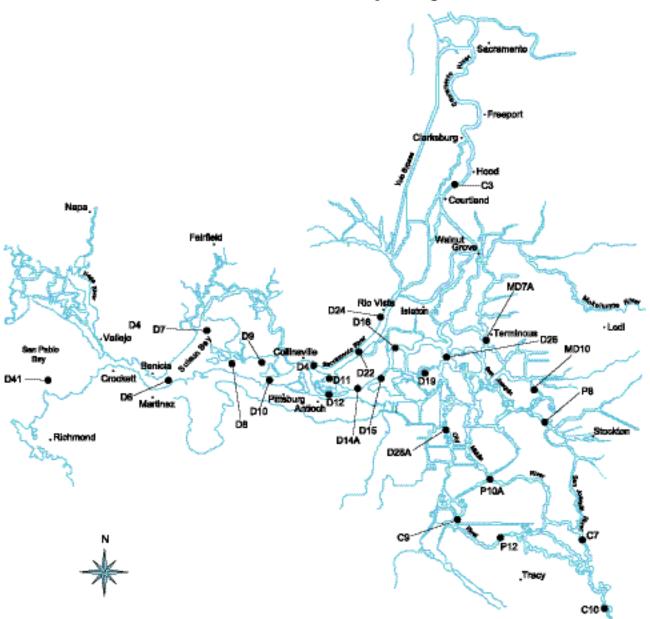
The 1995-96 water year was classified as "above average" for most of California. It came on the heels of the 1994-95 water year, which was the second wettest water year of record (since 1922) in the Sacramento River region. December through February produced well-above-average precipitation in Northern and Central California, following an extremely dry October and November. Rainfall and outflow were heaviest in the northern Sierra from February through mid-March. During this period, both the State and federal shares of San Luis Reservoir filled, and the New Melones Reservoir reached flood storage for the first time since 1986.

Later, Northern California storms produced the third wettest May of record, exceeded only in 1957 and 1990, with more than triple the normal precipitation. May storm inflows forced flood releases from Oroville and Folsom reservoirs and produced an unseasonably late overflow through Fremont Weir into the Yolo Bypass. The 1996 calendar year ended with the second wettest December of record for the northern Sierra; seasonal precipitation was exceeded only in December 1955.

Figure 6-1
Water Quality Monitoring Sites in the Sacramento-San Joaquin Delta

### Station Number and Name

C3 C7 C9 C10 D4 D6 D7 D8	Secremento River at Greens Landing Sen Joequin River at Mossdele Bridge West Canai at mouth of Intake to Cittion Court Forebay San Joequin River near Vernalis Secremento River above Point Secremento Suisun Bay off Bulls Head Point sear Martinez Grizzly Bay at Dolphin near Suisun Slough Suisun Bay off Middle Point near Nichols Horker Bay and Nichols		San Joaquin River at Jersey Point San Joaquin River at Twitchell Island Franks Tract near Russo's Landing Sacramento River at Emmation Sacramento River at Potato Vista Bridge San Joaquin River at Potato Point Old River opposite Ranch Del Ric San Pablo Bay near Pinole Point Little Potato Slough at Buckley Cove
D8	Suisun Bay off Middle Point near Nichols		
D9	Honker Bay near Nichols		Disappointment Slough at Bishop Cut
D10	Secremento River at Chipps Island	PB	Middle River at Buckley Cove
D11	Sherman Lake near Antioch	P10A	time to the second to the
D12	San Joaquin River at Antioch Ship Channel	P12	Old River at Tracy Road Bridge



The State Water Resources Control Board's 1995 Bay-Delta Plan contains objectives conditioned by water year type, which, in general, become less stringent in more critically-dry years. The water year classification system provides relative estimates of a basin's available water supply from the amounts of rainfall, snowmelt runoff, and groundwater accretion rates. Water year types can be classified as wet, above-normal, normal, dry, and critical.

The Bay-Delta Plan applies a water-supply forecast tool, called the Sacramento River Hydrologic Region 40-30-30 Water Supply Index, to replace the Sacramento River Index. SWRCB first introduced the 40-30-30 Water Supply Index in its 1991 Water Quality Control Plan for Salinity. The Bay-Delta Plan proposes to further refine the 40-30-30 Water Supply Index by eliminating the subnormal snowmelt and "year-following-dry or critical year" provisions found in Water Right Decision 1485.

The Sacramento Valley Unimpaired Runoff sums the major flows into the Sacramento Basin. The varying factors summed in the 40-30-30 Index are percentages of the following: the contribution of the current year's April-July SVUR (40 percent), projected current October through March SVUR (30 percent), and the previous year's 40-30-30 Index (30 percent), with a 10-million-acre-feet capacity limit.

The 1995 Bay-Delta Plan also includes a San Joaquin River Basin 60-20-20 Index, which uses methods similar to the Sacramento River 40-30-30 Index. The sum of both indexes—the Eight River Index—is used to determine the duration of the fish and wildlife salinity/flow standard at Chipps Island and, under specific conditions, at Port Chicago during February through June.

The April-July SVUR forecast for May 1, 1996, was 7.0 million acre-feet and 105 percent of average. The resulting 40-30-30 Index was 9.7 million acre-feet. Although less than the 1994-95 40-30-30 Index of 12.4 million acre-feet, the water year was still classified as "wet" for all beneficial uses. The San Joaquin 60-20-20 Index was also classified as wet for 1996, with a value of 4.1 million acre-feet. The Eight River Index was 13.8 million acre-feet.

### Operations under the Agreement, Amended D-1485, and the Winter-Run and Delta Smelt Biological Opinion

The Department and USBR agreed to operate the projects in accordance with the *Principles for Agreement* beginning January 1995. The agreement established water quality, flow, and operational criteria for the estuary. Operations of the CVP and SWP were to be assisted by the CALFED Ops Group through coordination with CVPIA and ESA requirements. The Ops Group, formed in 1994 by the Framework Agreement between the Governor's Water Policy Council of the State of California and the Federal Ecosystem Directorate, consists of representatives from seven State and federal agencies.

The agreement also expands "real-time monitoring" of fish movements and conditions in the estuary to aid daily water management. The purpose of real-time monitoring is to protect targeted fish species from entrainment at the Delta facilities of the SWP and CVP and provide water supply reliability. See Chapter 5 for more environmental issues.

### **Water Quality Standards**

High seasonal flows and water releases (both pulse and attraction flows) to benefit migrating fish helped maintain all electrical conductivity values well below objectives.

In 1996, all water quality requirements for wet-year conditions were met. Specific water quality requirements are set to benefit municipal, agricultural, and fish and wildlife uses. The SWRCB wet-year municipal and industrial water quality standard for chloride at the Contra Costa Canal Intake near Rock Slough was easily met throughout the entire year. An additional year-round municipal and industrial standard for maximum chloride levels of 250 mg/L was also met at the Contra Costa Canal, Tracy Pumping Plant, Clifton Court Forebay, Barker Slough, and Cache Slough.

Agricultural objectives met in 1996 included an EC standard of 0.45 : S/cm (14-day running average) during the irrigation season (April through mid-August), set at Emmaton, Jersey Point, Terminous,

and San Andreas in the western and central Delta. Year-round salinity standards set in the southern Delta on the San Joaquin River and at Tracy and Clifton Court Forebay were also met.

### **State Water Resources Control Board**

The State Water Resources Control Board, established by the California Legislature in 1967, oversees water rights and water quality for California. Among its many responsibilities, the SWRCB issues permits for the use of all water except groundwater and riparian water; distributes State and federal loans and grants for constructing sewage facilities; adopts water quality control plans, regulations, and policies; and sets water quality standards for the Delta.

To implement its mandate to set Delta water quality standards, the SWRCB issued Water Right Decision 1485: Sacramento-San Joaquin Delta and Suisun Marsh in 1978. That decision focused on SWP and CVP water right permits and operations, requiring the SWP and CVP to maintain Delta water quality as it would have existed without the projects. However, after Decision 1485 was adopted, various water users as well as the federal government challenged it in court. Since then, the Board updated its Water Quality Control Plan. It was adopted on May 2, 1995. Water Right Order 95-6 amended D-1485 to be consistent with the plan on June 8, 1995. Water Right Order 95-6 modifies the standards for Suisun Marsh and allows the CVP and SWP to use either project's Delta pumping plant to pump project water to increase fish protection and maintain project delivery capability.

### **Estuarine Habitat Protection Standard (X2)**

The estuarine habitat protection standard incorporates a modified X2 criteria or geographic isohaline first established in the 1994 delta smelt biological opinion. The upstream movement of a 2 ppt isohaline (2 parts per thousand of salt in the water), measured as 2.64: S/cm at the surface, is maintained within a certain range of positions in the estuary by adequate outflow. These positions (Chipps Island or Port Chicago during February through June) are associated with fish and biota abundances.

The number of days per month when the daily averaged EC maximum (2.65 : S/cm) is in effect at Chipps Island or, under specific conditions, at Port Chicago, are conditioned by the previous month's Eight River Index. This EC maxima may alternately be met with specific Delta outflow set at a 3-day

average of 11,400 cfs or 29,000 cfs, when the X2 position is at Chipps Island or Port Chicago, respectively. The Port Chicago standard is in effect during months when the Port Chicago 14-day EC average immediately prior to the first day of the month is less than or equal to 2.64: S/cm. The February Port Chicago objective is only in effect when the January Eight River Index is greater than 1 million acre-feet. During 1996, the Eight River Index for January through May was 2.42 million acre-feet, 6.22 million acre-feet, 4.24 million acre-feet, 3.98 million acre-feet, and 5.43 million acre-feet, respectively.

The Port Chicago recorder was not available from late January through early March. However, high outflow during February, March, and April met the alternate flow standard for the required number of days. During May and June, Port Chicago EC values met the specific number of days required for EC values less than 2.64: S/cm.

### Flow and Export Standards

D-1485 sets year-round minimum salmon migration flows in the Sacramento River at Rio Vista between 1,000 and 5,000 cfs using 30-day running averages. The winter-run salmon biological opinion also includes operations to meet wet year mean monthly flow objectives—3,000 cfs, 4,000 cfs, and 4,500 cfs for September, October, and November through December, respectively. During these periods, the 7-day running average cannot be more than 1,000 cfs below the monthly average.

The ESA biological opinions for winter-run salmon also included base flows in the San Joaquin River at Vernalis at 3,420 cfs for the periods from February to April 14 and May 16 to June 30.

The San Joaquin River spring pulse flow for April 15 to May 15 is set at a period mean of 8,620 cfs at Vernalis, with a 7-day average not less than 20 percent of period mean (greater than 6,896 cfs). An additional October requirement calls for a minimum monthly San Joaquin River flow rate of 1,000 cfs with an additional 28,000 acre-feet pulse/attraction flow to bring San Joaquin River flows to 2,000 cfs. The timing and duration of the pulse/attraction flow is based on real-time monitoring data and determinations made by the CALFED Ops Group. San Joaquin

River flow at Vernalis averaged 18,365 cfs for February to June.

Water Right Order 95-6 allows the CVP and SWP to use either project's pumping plants to pump project water to increase fish protection, with concurrence of the Ops Group and permission of SWRCB. Water Right Order 95-6 eliminated the D-1485 May to July export limits, but added new export restrictions based on the ratio of total Delta exports to Delta inflow. The ratio varies by month and is conditioned by the previous month's Eight River Index. During the April-May San Joaquin River pulse flow period, additional export restrictions may apply.

The actual export amount is calculated using the combined inflow rate for Clifton Court Forebay (excluding Byron-Bethany Irrigation District diversions from Clifton Court Forebay) added to the Tracy Pumping Plant diversion. The export/inflow ratio is then determined by dividing this sum by the total inflow into the Delta. The export/inflow ratio limit is reported as a 3-day running average, the Delta inflow as a 14-day running average. This changes during CVP or SWP storage withdrawals for export from upstream reservoirs, when both export rate and the Delta inflow are 3-day running averages.

In all water-year types, the February to June maximum combined export rate is 35 percent of Delta inflow; this may be relaxed in February during drier years to between 35 percent and 45 percent. During July to January, the export/inflow ratio rises to 65 percent. The actual export/inflow ratio averaged only 29 percent during 1996, well below allowable limits. During the more restrictive February to June period (35 percent objective), high flows and limited downstream demand dropped the ratio to only 10 percent.

Exports may also be limited during the 30-day April 15 to May 15 pulse flow period to 1,500 cfs or 100 percent of the San Joaquin River flow at Vernalis, whichever is greater. This export limit can be used in lieu of the 35 percent export limit only if it results in more restrictive conditions. Input from the CALFED Ops group and real-time monitoring events are also considered in setting exports.

On April 26, 1996, the CALFED Management Team met to resolve issues brought forward by the Bay-

Delta Program staff and the CALFED Ops Group on flow availability from upstream dam releases to meet the Vernalis pulse flow objective. An agreement was reached that limited the combined CVP/SWP exports to 25 percent of the San Joaquin River flow at Vernalis during the pulse-flow period (April 15 to May 15). USBR agreed to purchase and/or release additional water to sustain higher pulse flows to help carry out-migrating salmon through the Delta. The agreement allowed an adjustment of the wet-year pulse flow objective (between 7,330 cfs and 8,620 cfs) to flows that averaged about 6,500 cfs. It also supported the export of "make-up" water to be pumped by the SWP for the CVP in the fall.

From April 15 to May 15, combined CVP/SWP exports averaged about 1,600 cfs, less than 25 percent of the Vernalis period flow (6,500 cfs). This represented a decrease of about 85 percent at the beginning of April. The period's export/inflow ratio dropped to only 4 percent, with SWP exports at Banks Pumping Plant averaging only 701 cfs.

An estimated 200,000 acre-feet of combined shortterm water loss to the two projects was projected to be recovered by make-up pumping later in the year.

On October 2, 1996, the CALFED Ops Group called an emergency meeting to develop an operational plan allowing Banks Pumping Plant to pump make-up water for the CVP before forwarding a petition to SWRCB to allow a joint point of diversion, as was done in previous years. The operational plan identified a course of action to be taken if any impact to sensitive Delta species occurred during the make-up pumping. Subsequently, on October 9, the CALFED Ops Group sent a statement of general consensus to SWRCB regarding the USBR operational plan. Pumping was approved and began October 12. The SWP exported almost 130,000 acre-feet for CVP between October 13 and November 14, which constituted almost 40 percent of Banks exports during the period.

In late October, the CALFED Ops Group approved tests proposed by the Anadromous Fishery Restoration Plan and the San Joaquin Tributary Association that required higher pumping rates at Banks. Since the SWP share of San Luis Reservoir was already full, an additional 46,324 acre-feet were exported for

the CVP through Banks during the fish-testing period (December 12 to 16).

### **Delta Outflow**

Delta outflow cannot be measured directly due to the major tidal influence in the Delta. An approximation of Delta outflow is calculated instead using measured inflows, exports, and estimated Delta water use. The Net Delta Outflow Index, introduced in the 1995 Bay-Delta Plan, guided operations in 1996. It provides a more accurate method for calculating Delta outflow by including inflows of the Yolo Bypass system, the eastside stream system (the Mokelumne, Cosumnes, and Calaveras rivers), San Joaquin River at Vernalis, and the Sacramento Regional Treatment Plant.

The NDOI calculated flows cannot be directly compared to the Delta Outflow Index used prior to 1995 because the Sacramento River bypass flows and several eastside stream flows were not incorporated into the DOI. The calculation of Delta consumptive use also differs in NDOI.

During 1996, the Yolo Bypass flows contributed about 14 percent of total Delta inflow and over 27 percent of inflow during the high-flow period of February through mid-March. The NDOI averaged 39,476 cubic feet per second (daily rate) during calendar year 1996.

In 1996, sustained excess outflow conditions (as defined by the Coordinated Operating Agreement) predominated for 299 days, or 82 percent of the year. Three major periods between early January and mid-June sustained flows over 100,000 cfs. A peak of sustained daily flows over 150,000 cfs occurred from February 22 to 28, which also included 3 days over 200,000 cfs.

Excess conditions allowed greater flexibility in project operations; however, two new outflow designations restricted exports during excess periods. A fish-related restriction applies when export pumping may impact endangered or threatened Delta fisheries. Exports are also restricted during excess flows to balance the export/inflow ratios within set objectives. These restrictions were in effect during about 20 percent of the designated "excess" outflow days.

During February through June, the wet year NDOI objective is 7,100 cfs, calculated as a 3-day running average. The NDOI objective can be relaxed with recommendation of the CALFED Ops Group during drier years. The 3-day running average for the February through June period never fell below 9,000 cfs and averaged over 65,000 cfs. Numerical limits for July through December vary between monthly minimums of 8,000 cfs (July) and 4,000 to 4,500 cfs (August to October and November to December). July NDOI averaged over 10,000 cfs and mean monthly NDOI never fell below 4,800 cfs from August through December. A winter storm deluge during the last half of December sustained a mean NDOI over 100,000 cfs.

### **Temporary Delta Barriers**

### **South Delta Barriers**

Several barriers are installed annually in the south Delta as part of the South Delta Temporary Barriers Project, an experimental program for long-range south Delta planning. The Temporary Barriers Project began in 1991 following the 1990 release of the South Delta Water Management Program Draft Environmental Impact Report/Environmental Impact Statement. The program was designed to resolve local south Delta water supply issues within the larger context of the Department's water banking program. The program included proposals to construct up to four barriers in the south Delta during a 5-year test period to precede construction of the permanent barriers. The barriers will improve local water levels and circulation patterns, protect fishery resources, and meet other South Delta Water Management Program objectives. Barriers are located on Middle River, Old River at Tracy, and Old River at head.

In 1995, the Department applied for permits with Department of Fish and Game and the U.S. Army Corps of Engineers for a barrier on Grant Line Canal, east of the Tracy Boulevard Bridge. The Grant Line barrier is the last barrier proposed in the South Delta Temporary Barriers Project. It will enhance water levels, quality and circulation, and fish migration in the south Delta and improve agricultural operations as specified under the South Delta Water Agency Agreement. In 1996, the Grant Line Canal barrier

installation was postponed due to concern for nearby endangered Swainson's hawk nesting sites. The temporary barrier project was scheduled to end in 1995; however, the Department received a 5-year program extension.

The Middle River barrier is a temporary, tidally-controlled barrier installed near Victoria Canal, about one-half mile south of the confluence of Middle River and Trapper Slough. In 1996, the barrier on Middle River was installed on May 18 and removed by September 29. Prior to inclusion in the SDTBP, it had been placed annually since 1987 as specified in earlier agreements with the Department and South Delta Water Agency (1986).

The Old River barrier at Tracy is a temporary barrier that has been installed annually in spring since 1991. The barrier is placed on Old River, east of the Delta-Mendota Canal intake at Tracy Pumping Plant. The Old River barrier at Tracy provides benefits similar to those of the Middle River barrier. Construction of the Old River barrier at Tracy began May 12 but was delayed on May 17 due to high flows. Construction resumed on June 5 for completion by June 10. Removal was completed October 16.

Since 1969, a spring barrier has been placed across Old River at its head—where it meets the San Joaquin River—to prevent salmon from straying from their migration path into interior Delta sloughs and channels. The spring Old River barrier at head was installed May 6. It was breached May 16 on an emergency basis. Full removal wasn't completed until September 9, 1996.

During late summer and early fall each year, dissolved oxygen concentrations in the Stockton Ship Channel are closely monitored because they can deteriorate to critically low levels (<5.0 mg/L), cause physiological stress to fish, and block upstream migration of salmon.

These conditions result from many factors, including low stream inflows, intermittent reverse-flow conditions in the San Joaquin River past Stockton, warm water temperatures, reduced tidal mixing, and high baseline biochemical oxygen demand levels as the result of regulated discharges in the Stockton area. If the deterioration persists, a temporary rock barrier is

usually installed in the fall at the head of Old River to increase net flows down the San Joaquin River past Stockton to help alleviate the potential dissolved oxygen problems, particularly in the eastern channel. The barrier was installed on October 3, 1996, about a month later than usual, because September average daily flows in the San Joaquin River past Vernalis were > 2,000 cfs. These relatively high levels were the result of the residual effects of the wet 1996 water year.

Compliance monitoring of dissolved oxygen levels in the channel was conducted by vessel from August through November 1996. Monitoring from August through early October 1996 showed a distinct dissolved oxygen sag in the eastern end of the channel, with the lowest surface and bottom values (levels <5.0 mg/L) at, or immediately west of, Rough and Ready Island. This depression appeared to be due primarily to the persistence of warm water temperatures (21-27°C) and average daily San Joaquin River flows of 2,500 cfs or less past Vernalis throughout the late summer and early fall.

Although the barrier was completed in early October, improved flow conditions in the San Joaquin River and the eastern Stockton Ship Channel did not occur until mid-October, when average daily flows approached 4,000 cfs and reverse-flow conditions past Stockton were eliminated. Post-barrier monitoring on October 25 and November 12, 1996, showed a dramatic improvement in dissolved oxygen conditions throughout the channel, with the depression eliminated and all dissolved oxygen levels ≥7.5 mg/ L, due primarily to the full effects of the barrier and significantly cooler water temperatures (13-16°C). The barrier was removed November 19, 1996, due to acceptable dissolved oxygen levels within the channel and anticipated further increases in San Joaquin River flows.

### **Biological Surveys**

The Department surveys benthic organism density and diversity along with phytoplankton biomass and community composition in the Sacramento-San Joaquin Delta and Suisun and San Pablo bays (the San Francisco Bay-Delta estuary). These surveys are conducted in response to the mandate of Water Right

Decision 1485 as amended by Water Quality Control Plan 95-1WR adopted in May 1995, and as part of the Interagency Ecological Program.

### **Benthic Monitoring**

The benthic monitoring program is designed to record abundance and distribution trends in macrobenthic (bottom dwelling) organism populations, and to detect and document the introduction of exotic species into the San Francisco Bay/Sacramento-San Joaquin Delta system. In 1996, the benthic monitoring program expanded from six to ten sites to sample a wider range of benthic-habitat types throughout the Delta and Suisun and San Pablo bays. Bottom grab samples and sediment samples were taken monthly from each site. As a result of the more environmentally diverse sampling, several new benthic species were added to the species list in 1996. The species are as follows:

- Two new microturbellarian species. One species of flatworm was found near Collinsville in January 1996 and another was found near Rio Vista in September 1996.
- Limnodrilus claparedianus. This rare Tubificid worm was initially found at Clifton Court in January 1996. It was subsequently detected in samples from the San Joaquin River near Stockton in March and at Old River in April 1996.
- Tubificoides wasselli. Generally considered more of a marine worm, *T. wasselli* is not usually seen as far inland as San Pablo Bay, where it was found in January 1996.
- An Amphiurid. This small starfish, commonly seen in southern San Francisco Bay, was found in San Pablo Bay near Pinole Point in January 1996.
- Cryptotendipes sp. This new species of midge larvae was found in the San Joaquin River near Stockton in March 1996.
- A nudibranch. This new species of sea slug was found in San Pablo Bay, near Pinole Point, in August 1996.
- A Cephalaspidean. This soft-bodied mollusk with an internal snail-like shell was found near Pinole Point in San Pablo Bay in August, and near the mouth of the Petaluma River in December 1996.

Benthic assemblages at all sampling stations continue to be dominated, in biomass and number, by introduced Asian clam species. *Potamocorbula amurensis* thrives in the brackish to saline waters in San Pablo Bay, Carquinez Strait, and Grizzly Bay. *Corbicula fluminea* dominates in the fresher waters near Collinsville, Twitchell Island, Rio Vista, Buckley Cove, Old River, and Clifton Court.

### Phytoplankton Monitoring

Phytoplankton are free-floating microscopic plants in the water column. They form the base of the aquatic food web and, therefore, directly influence the health of the Bay-Delta estuary. Their standing stock or biomass in the water column is estimated by concentrations of the photosynthetic pigment chlorophyll *a*.

During 1996, chlorophyll a concentrations were generally low throughout the estuary, due to high outflows that transport phytoplankton downstream. As usual, the highest chlorophyll a concentrations occurred during a mixed diatom bloom in the southern Delta at Vernalis, reaching 25-30 Fg/l in June and July. These concentrations, however, were low compared with previous years, where concentrations often reached at least 50 Fg/l and were associated with blooms of Aulacoseira granulata. Chlorophyll a concentrations also remained low in the eastern Delta, where concentrations did not exceed 8 Fg/l. In Suisun Bay and the western Delta, monthly average chlorophyll a concentrations remained below 3.5 Fg/l—common since 1987 when the clam *Potamo*corbula amurensis became established in this region of the estuary. In contrast, downstream in San Pablo Bay, an increase in flagellates during May and July pushed chlorophyll a concentrations to 12 and 9 Fg/l, respectively. These values were similar to those measured in the early 1980s. The revised sampling program in 1996 also measured chlorophyll a concentrations at 2 and 6 FS/cm, which commonly occur between Suisun Bay and the western Delta. Concentrations peaked at 3 and 5 Fg/l in April and August and were 1-2 Fg/l higher at 6 FS/cm than at 2 FS/cm.

### **Activities Outside the Delta**

Activities conducted outside the Delta include scheduled routine SWP water quality monitoring as well as

special studies. Most of these special studies are in response to fish and wildlife and water quality issues of importance to agencies that provide domestic water supply. These agencies face increasingly stringent regulations and look to the SWP to deliver high quality raw water.

### **Water Quality Monitoring**

The Division of Operations and Maintenance collects detailed water quality information on the concentration and distribution of chemical, biological, and physical parameters at 33 aqueduct and reservoir sites located throughout SWP facilities. Twenty stations are situated south of the Delta at reservoirs, pumping plants, power plants, and check structures of the South Bay, Coastal Branch, and California Aqueduct. Other monitoring activities are conducted on the Feather River and at State reservoirs north of the Delta—Lake Oroville, Antelope Lake, Frenchman Lake, and Lake Davis.

The Water Quality Program of the SWP was established in 1968 with completion of the California Aqueduct. Over 60 different chemical constituents are monitored monthly, quarterly, or annually. In addition, 20 automated stations are maintained for continuous monitoring of aqueduct water. Figure 6-1 shows water quality monitoring sites throughout the Sacramento-San Joaquin Delta.

The Department maintains an analytical laboratory, the Bryte Laboratory in West Sacramento. The Bryte Laboratory processes most SWP laboratory water quality assessments (see sidebar on page 62). The Department also contracts for some laboratory services. Water samples from 15 SWP stations are analyzed monthly to determine levels of dissolved solids and concentrations of nutrients, chloride, sulfate, sodium, trace metals, and other constituents. Herbicides, pesticides, organic substances, and phytoplankton are monitored less frequently. In 1995 and 1996, new instruments included a fluorometer with optics to detect hydrocarbons. This was installed to detect any diesel fuel spills during construction on Lake Silverwood. A similar instrument was also installed at the headworks of the Banks Pumping Plant.

Selected SWP water quality data are available electronically through the Department Internet home page (http://www.water.ca.gov) and reported monthly in the State Water Project Operations Data Report. Table 6-1 presents laboratory results of sampling at several representative stations during 1996.

Delta exports are normally the primary source of water in SWP facilities and reservoirs south of the Delta. Most Delta water is exported south during the winter and spring when the greatest freshwater outflow occurs; as a result, reservoirs south of the Delta are usually supplied with the highest quality water. San Luis Reservoir, the only SWP conservation storage facility between the Delta and Southern California, is usually filled by May 1.

### **Municipal Water Quality Investigations Program**

The Sacramento-San Joaquin Delta provides drinking water for about two-thirds of California's population. Because the Delta is a relatively unprotected watershed, water quality degradation is possible from many sources, including abandoned mines, industrial and municipal waste water discharges, storm water runoff from cities, agricultural discharges, recreational activities, and illegal dumping. The Municipal Water Quality Investigations Program was established to evaluate the suitability of Delta water as a drinking water source, to identify sources of water quality degradation, and to evaluate means of eliminating or preventing degradation of Delta water quality.

Participants in the program include Contra Costa Water District and the municipal water contractors of the SWP. Program advisors include representatives of participating agencies, including the Environmental Protection Agency, California Department of Health Services, and California Urban Water Agencies. Because water quality concerns change rapidly with new drinking water regulations and water quality issues, the MWQI program must be flexible enough to adapt to changing requirements. The former Delta Health Aspects Monitoring and Delta Island Drainage Investigations programs merged into the MWQI program in 1990, and the program has continued to evolve.

Table 6-1
1996 Water Quality at Selected State Water Project Locations

			Thermalito	o North Bay		Delta-		California Aqueduct at				Autists 40
Constituents	Units	Reporting Limit < than	Afterbay Outlet to Feather River mean	Aqueduct Barker Slough Pumping Plant mean	Banks Pumping Plant mean	Mendota Canal Upstream McCabe RD mean	O'Neill (Check 13) mean	Kettlemen City (Check 21) mean	Highway 119 (Check 29) mean	Tehachapi Afterbay (Check 41) mean	Devil Canyon near San Bernardino mean	Article 19 Objectives Month/10 year Average or Maximum
Alkalinity	mg/L	N/A	35	96	58	67	66	68	71	69 (a	69 (a	-
Arsenic	mg/L	0.001	< 0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.05 max
Boron	mg/L	0.1	<0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2 (a	0.2	-
Bromide	mg/L	0.01	<0.01 (d	0.04	0.11	0.15	0.14	0.16 (c	NR	0.14	0.13	-
Calcium	mg/L	1	7	15	15	20	18	18	19	18	18	-
Total Organic Carbon	mg/L	1	NR	8	4	4	4	4	NR	4	4	-
Chlorides	mg/L	1	1	20	37	49	47	50	51	48 (a	43	110/55
Chromium	mg/L	0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	-
Copper	mg/L	0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	3 max
Flouride	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1(11) (a	< 0.1(11)	1.5 max
Hardness	mg/L	1	30	94	74	94	88	90	91	89	87	180/110
Iron	mg/L	0.005	0.011	0.047	0.026	0.027	0.036	0.053	0.017	0.023	0.109	-
Lead	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	-
Magnesium	mg/L	1	3	14	9	11	10	11	11	10 (a	10	125 max
Manganese	mg/L	0.005	0.006	0.022	0.021	0.025	0.011	0.011	0.034	0.022	0.057	-
Nitrate + Nitrite	mg/L	0.01	0.04 (b	0.65	0.55	NR	NR	NR	NR	0.68	0.54	-
Phosphorus-Ortho	mg/L	0.01	0.01	0.09	0.07	NR	NR	NR	NR	0.10	0.06	-
Phorphorus-Total	mg/L	0.01	0.02	0.22	0.11	NR	NR	NR	NR	0.15	0.11 (a	-
Selenium	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001 b)	< 0.001	< 0.001	< 0.001	0.05 max
% Sodium	mg/L	N/A	3	25	30	42	38	39	41	38 (a	34 (a	50/40
Specific Conductance	μS/cm	5	75	304	306	401	372	387	396	374 (a	343 (b	-
Sulfate	mg/L	1	2	24	30	45	36	37	38	36 (a	32 (a	110/20
Total Dissolved Solids	mg/L	1	53	177	174	232	212	219	223	214 (a	201 (a	440/220
Trihalomethane Formation Potential	μg/l	1	NR	846	430	419	436	360 (d	301 (c	433	429	
Zinc	mg/L	0.005	<0.005	0.006	0.005	< 0.005	0.005	<0.005	<0.005	0.005	0.005	15 max

Notes: Turbidity is measured by a continuously-recording Nephelometer and expressed as NTU (Nepheleometer Turbidity Units), and specific conductance is measured by continuous electrical conductivity recorders, except at Thermalito Afterbay and Check 29, which are based on single monthly samples. Values for chlorides, dissolved solids, hardness, percentages of sodium, and sulfate are correlated from specific conductance except at Thermalito Afterbay and Check 29, which are analytical values. All other selected constituents are the yearly mean of laboratory analytical values sampled monthly. Nondetectable values are assumed equal to reporting limits for calculation of mean. Thermalito Afterbay was not sampled in February 1996; data are means of 11 values unless indicated otherwise.

NR = data not collected or recorded at this location.

- a) mean of eleven values.
- b) mean of ten values.
- c) mean of four values.
- d) mean of three values.

The program's initial focus was to compile a comprehensive database on drinking water quality in the Delta. Since then, the program has investigated ways of managing Delta lands and waters to minimize adverse impacts on drinking water quality. The program identified sources of contaminants in the Delta and assessed their significance for drinking water quality and water treatment. Through extensive investigations, the program identified agricultural drainage as a major source of natural organic matter that could hinder water treatment to meet drinking water standards.

In addition to monitoring water quality in the Delta, the program now includes studies on source water improvement and management. Several studies developed and tested possible solutions to drinking water problems of the Delta and other watersheds of the SWP.

As required by the Department of Health Services, a 5-year update of the sanitary survey of the SWP resulted in the report, *California State Water Project Sanitary Survey Update Report 1996*. This survey documented water quality conditions and identified potential sources of contamination within the SWP. In addition, the report included recommendations for further investigations and corrective actions. Based on these recommendations, activities and investigations within the MWQI program addressed these water quality issues.

The sanitary survey identified the Barker Slough watershed as having the most challenging water quality conditions in the SWP. Water quality problems identified within this watershed included high levels of turbidity and microbial contaminants, as well as high concentrations of organic carbon, aluminum, iron, and manganese.

The North Bay Aqueduct/Barker Slough Watershed Study was initiated based on these problems. The study was divided into two phases. Phase I began July 1, 1996. The second phase will begin after all sampling for Phase I (July 1, 1996 to June 30, 1997) is completed and reviewed by the Department and the North Bay Aqueduct Technical Advisory Committee. Phase I is designed to quantify water quality constituents at the screening level. Phase II will be

designed to investigate specific pollutants and identify mitigation measures for those pollutants.

In response to a recommendation of the sanitary survey report, the MWQI Program, in coordination with the Division of Operations and Maintenance and the Metropolitan Water District of Southern California, implemented a Coordinated Pathogen Monitoring Program for the SWP and the Delta. This monitoring program began in fall 1996 and will continue through April 1998. The program evaluates the microbiological status of SWP source waters.

Other components of the MWQI program include:

- predictive computer models developed to determine the costs of treating water from different Delta locations;
- additional monitoring of newly regulated and potentially regulated chemicals to assess the vulnerability of Delta water supplies to these contaminants; and

### **Quality Assurance/Quality Control**

The water-related data collected by the Department must be scientifically supportable. To help protect the Department's large investment in water-related data, the Quality Assurance/Quality Control Program was created in 1992. Under the QA/QC program, guidance documents are published, training courses are implemented, and technical support is provided to managers of water data collection programs throughout the Department.

In addition to its basic mission of supporting and strengthening the validity, integrity, and credibility of water data collected by the Department, the QA/QC program also provides leadership in efficient planning and execution of data collection activities. To minimize cost, it is necessary to carefully plan, implement, interpret, and evaluate data collection activities. Good data collection programs begin with identifying the data collection goal and establishing the data quality objectives to meet the goal. This planning is done before actual data collection and assures that the correct type and amount of data are collected to meet program objectives. Through this process, the Department avoids collecting inadequate, irrelevant, or extraneous data, and thereby avoids waste.

 installation and testing of new instrumentation to provide real-time water quality data to improve Delta water quality.

Collectively, these and other MWQI studies and activities are designed and conducted to address major water quality and water supply issues, such as (1) the Delta's ability to meet user needs, (2) the ability to meet stricter State and federal regulations, and (3) the ability to obtain reliable, clean water supplies in the future. Each study or activity serves to discover, test, and assess possible solutions to problems in the Delta and other watersheds of the SWP and assures that future demands for safe, potable water supplies can be met.

### **Bryte Chemical Laboratory**

Bryte Chemical Laboratory, established in 1951, continues to perform the majority of chemical and other related analyses requested to support the Department's water quality programs. Thousands of water samples are analyzed for minerals, nutrients, metals, pesticides, and other constituents. Bryte Laboratory continues to manage all analytical contracts with outside laboratories according to the Master Contract Policy approved in fiscal year 1994-1995. The laboratory is working with the Quality Assurance/Quality Control Program to replace one contract that expires at the end of fiscal year 1996-1997.

Analytical procedures and methods are continually updated and evaluated by the laboratory. Several new methods were added to the list of available services after extensive testing and development. One new procedure involved the reactivity of chlorine with naturally occurring organic matter to form disinfection by-products. The new method will characterize formation potentials of trihalomethanes and haloacetic acids based on the reactivity of chlorine with natural organic matter found in water. In addition, methyl tertiary-butyl ether, an oxygenate additive to gasoline, was added to an existing laboratory method involving the analysis of volatile organic compounds. This addition allowed the laboratory to perform the required analyses for a MTBE survey. This survey is a part of a larger survey being conducted by the Association of California Water Agencies. It

began in May 1997 and is scheduled to end in November 1997.

The laboratory purchased two analytical instruments during fiscal year 1996-1997 to modernize and expand the laboratory's analytical capabilities. The inductively coupled plasma/mass spectrometer used in trace-metal analysis was installed and the applicable EPA methods evaluated. After the method performance evaluation and certification were completed, the laboratory was able to lower many detection limits reported for trace metals. The new instrument allowed the laboratory to reduce the cost of analysis by 35 percent. This is entirely due to the efficiency and reduced analytical time provided by the new ICP/MS. A gas chromatograph/mass spectrometer was also purchased to analyze organic compounds. This analytical instrument should be installed in September 1997 and is expected to increase and expand laboratory capabilities and provide greater efficiency and cost savings.

### **Bryte Laboratory**

The Department's extensive water quality investigations result in thousands of samples annually that require laboratory analysis. Bryte Laboratory, located in West Sacramento, analyzes these samples. The laboratory, which is organized within the Division of Planning and Local Assistance, provides service to clients throughout the Department and to other agencies. A wide range of analyses are performed, including minerals, nutrients, metals, and pesticides. The laboratory undergoes continual modernization as new substances become the focus of attention, and as newer, more accurate, analytical methodology is developed. Because of rapid developments in the field of water quality, the laboratory is constantly evolving, like the programs it serves.

Implementation of the Field and Laboratory Information Management System occurred during fiscal year 1996-1997. This system allows electronic transfer of samples for analysis to the laboratory, simplifying the transfer process. It provides users with information on all analytical services available through Bryte Laboratory, including costs. It also provides users with sample requirements for each analysis requested, such as types of containers needed, sample volumes necessary, and the type of sample preservation required. The new system is designed to store all

current analytical data, including all required QA/QC data pertaining to sample analysis. It is designed to log, track, and assign sample analyses to the appropriate chemist in the laboratory. FLIMS will then generate the final reports to the requestor in hard copy and, if required, in electronic format suitable for the user. The implementation and beta testing of FLIMS is scheduled to be completed at the end of calendar year 1997, with full implementation by early 1998.

### **Quality Assurance/Quality Control**

The Quality Assurance/Quality Control Program was established in 1992. It ensures that data produced by the Department's annual multimillion dollar investment in environmental monitoring activities meet high quality standards and are scientifically defensible. In accordance with departmental QA/QC policy, the QA/QC program is responsible for:

- integrating QC procedures into environmental monitoring activities;
- developing a QA/QC management plan;
- coordinating QA/QC activities through an assigned QA officer;
- requiring all in-house and contract laboratories that provide analytical services for the Department to follow EPA approved (or equivalent) analytical procedures and standards of practice; and
- implementing QC procedures in the most costeffective manner without compromising data quality objectives.

Several QA/QC technical documents have been published to provide information, assistance, and training in QA/QC practices and principles. These technical documents include:

- Quality Assurance Guidelines for Analytical Laboratories;
- Sampling Manual for Environmental Measurements;
- Compilation of Federal and State Drinking Water Standards and Criteria;
- Compendium of Water Quality Investigations in the Sacramento-San Joaquin Delta;

- Guidelines for Preparing Quality Assurance Project Plans; and
- Compilation of Soil and Sediment Standards, Criteria, and Guidelines.

During fiscal year 1996-1997, two technical documents were updated, *Quality Assurance Guidelines* for Analytical Laboratories and Compilation of Federal and State Drinking Water Standards and Criteria.

In addition, the following technical documents were updated or were being developed:

- Compendium of Water Quality Investigations in the Sacramento-San Joaquin Delta;
- Guidelines for Preparing Quality Assurance Project Plans; and
- Quality Assurance Management Plan for Environmental Monitoring Programs.

Because of a large number of requests for an introductory course in QA/QC principles, two sessions of the QA/QC training course—Introduction to Quality Assurance/Quality Control in Environmental Monitoring Programs—were held during fiscal year 1996-1997. Trainees included not only employees of the Department, but also employees of member agencies of the State Water Contractors.

During fiscal year 1996-1997, the QA/QC Program assumed a more proactive role to assure that all inhouse and contract laboratories providing analytical services for the Department complied with QA/QC procedures, standards, and requirements. To fulfil this role, the QA/QC Program:

- conducted on-site surveys and audits of operations at in-house and contract laboratories;
- attended DHS certification review surveys of inhouse laboratories;
- implemented a scheduled program of performance evaluations of all in-house and contract laboratories; and
- continued planning and development of the Department's Field and Laboratory Information Management System for storage, retrieval, and analysis of QA/QC and environmental data.

Other services provided by the QA/QC Program include assisting other Department programs in developing quality assurance project plans, evaluating QA/QC data to determine the accuracy and precision of environmental data generated for the program, and testing and evaluating the performance of environmental monitoring equipment. Ongoing assistance is provided to all departmental environmental monitoring programs, including those within the Division of Planning and Local Assistance, Division of Operations and Maintenance, Environmental Services Office, and the Interagency Ecological Program.

### **Suisun Marsh Activities**

### The Suisun Marsh

Suisun Marsh is made up of about 59,000 acres of tidal and managed brackish water wetlands and 30,000 acres of bays and sloughs. It is the largest contiguous estuarine marsh remaining in the United States. Situated in southern Solano County, west of the Sacramento-San Joaquin Delta and north of Suisun Bay, the marsh encompasses more than 10 percent of California's remaining natural wetlands (Figure 6-2). In addition, the marsh is the resting and feeding ground for thousands of waterfowl migrating on the Pacific Flyway.

Since the early 1970s, the Department, the California Legislature, the SWRCB, USBR, and other agencies have focused on preserving the Suisun Marsh as a unique environmental resource. As part of its respon-

sibility for protecting Suisun Marsh, the SWRCB included water quality standards for the marsh in Water Right Decision 1485 and Water Right Order 95-6 (amending D-1485), which apply to SWP and CVP operations. In 1987, the Department, USBR, DFG, and the Suisun Resource Conservation District signed the Suisun Marsh Preservation Agreement (see sidebar). The Preservation Agreement contains provisions for actions to control channel water and soil salinity to mitigate for impacts of the SWP, CVP, and other upstream diverters on managed wetlands in Suisun Marsh.

# **Suisun Marsh Preservation Agreement Activities**

Amending the Suisun Marsh Preservation Agreement. In August 1995, representatives of the Department, USBR, DFG, and SRCD began negotiating to update the Suisun Marsh Preservation Agreement. To help meet interior marsh water quantity and water quality needs for managed wetlands, the Department and USBR constructed the Initial Facilities and the Suisun Marsh Salinity Control Gates. The four parties now agree that the additional large-scale facilities suggested for Phases III through VI of the Plan of Protection for the Suisun Marsh are not necessary for salinity control in Suisun Marsh because of the greater-than-anticipated effectiveness of the SMSCG and the higher outflows resulting from the 1995 Water Quality Control Plan. At the same time, the parties identified the following actions to improve water and habitat management, lower channel water

### **Suisun Marsh Preservation Agreement**

In 1986, federal legislation (Public Law 99-546) authorized funds to USBR to protect Suisun Marsh. On March 2, 1987, the Department, USBR, DFG, and the SRCD signed the Suisun Marsh Preservation Agreement. The objective of the SMPA is to assure that USBR and the Department mitigate for any adverse effects of the Central Valley Project and State Water Project on managed wetlands in the marsh, as well as a portion of the adverse effects of other upstream diversions. Under the original agreement, this objective is accomplished by constructing large-scale facilities in the marsh to maintain a dependable supply of adequate quality water within Suisun Marsh Channels. A component of the large-scale facilities is the Suisun Marsh Salinity Control Gates facility, declared operational November 22, 1989 (about 1 year after initial operation).

On August 4, 1995, the Suisun Marsh Coordinators representing the four agencies party to the SMPA began discussions directed at updating the agreement, pursuant to SMPA Articles 4 and 17. Representatives from USBR, the Department, DFG, and the SRCD established an ad hoc Negotiating Team, Technical Group, Drafting Committee, and Environmental Documentation Team. Beginning September 1995, the SMPA Negotiation Team met monthly in Sacramento and made significant progress in developing the basis to amend the agreement. Representatives from the SWP and CVP contractors actively participated in the negotiations. Updating the SMPA will reflect future hydrologic and salinity conditions in the Suisun Marsh as prescribed by the SWRCB 1995 Water Quality Control Plan and Order 95-6 and will place more emphasis on improving water and land management practices and facilities on managed wetlands.

Figure 6-2
Compliance and Monitoring Stations in the Suisun Bay and Marsh



salinity and soil salinity in the western marsh, and provide funds for wetland management in response to prolonged drought conditions:

- meet channel water salinity standards in Order 95-6:
- convert S-35 and S-97 from compliance stations to monitoring stations;
- set criteria for operating the Suisun Marsh Salinity Control Gates in September;
- implement Water Manager Program;
- update existing management plans;
- implement Joint-Use Facilities Program; Managed Wetland Improvement Fund;
- install portable diversion pumps with fish screens;
- install portable drainage pumps;
- realign and stabilize Roaring River Distribution System turnouts; and
- establish the Drought Response Fund.

The SMPA negotiators pursued an alternative with the Fairfield Suisun Sewer District to construct an intertie between the treatment plant and Green Valley Creek and discharge treated effluent into the northwestern portion of the marsh. However, FSSD notified the SMPA parties that too many obstacles prevent this project from proceeding at this time.

During 1996, the parties continued working to complete the SMPA Amendment Three and an initial study/environmental assessment for CEQA/NEPA compliance. SWRCB included the above joint actions as an alternative in the environmental impact report and is preparing to implement the 1995 WQCP.

Comprehensive Suisun Marsh Data Review. The Suisun Marsh Preservation and Monitoring agreements require a long-term review of the data collected by the monitoring program. Data have been collected since 1985, including specific conductance of channel water, pond water, and soil water; pond stage; vegetation occurrence and production; waterfowl use; fish abundance and distribution; and salt marsh harvest mouse presence. Data review began in spring 1996. An ad hoc technical team was established in 1996, with representatives from the Department, DFG, and SRCD to conduct this review. Efforts thus far have sought to determine if there are

relationships between the specific conductance of applied water, pond water, and soil water; vegetation occurrence; and waterfowl usage. The Suisun Marsh monitoring program will be updated based on the findings and recommendations of the Comprehensive Review Team.

Individual Ownership Cost Share Program. The Individual Ownership Cost Share Program is a component of the Suisun Marsh Preservation Agreement designed to improve water management on private ownerships within the Suisun Marsh. Funded improvements include replacing, lowering, and/or enlarging drainage structures and purchasing pumps to assist drainage. The program began in 1987 with a 50 percent reimbursement by the Department and USBR; however, participation in the program has greatly increased since 1994 when the Suisun Marsh Coordinators increased the Department and USBR cost share reimbursement to 75 percent.

Seventeen applications were submitted and paid during 1996. The total cost of these improvements was \$498,812—\$392,815 paid to SRCD and distributed to the landowners. The Department and USBR have spent \$932,516 since the program began in 1987.

Lower Joice Island Water Intake Fish Screen. In 1996, the Department evaluated three fish screen designs and cost estimates for the project, two from the Department and one from SRCD. In April 1996, the Department decided to postpone installation of the screen by 1 year to evaluate the effectiveness of the five fish screens SRCD installed in summer 1996. The Department and USBR selected a fish screen design in March 1997 after evaluating the performance report for the SRCD fish screens. The Department plans to install the screen by October 1997.

### **Initial Facilities Maintenance**

Initial facilities listed in the SMPA include the Morrow Island Distribution System, Roaring River Distribution System, and Goodyear Slough Outfall Structure (Figure 6-2). These facilities are described in the Plan of Protection for the Suisun Marsh (see sidebar) to mitigate, in part, for effects on the Suisun Marsh caused by the CVP and SWP. In addition to routine maintenance conducted on the three facilities, the Department also conducted the following activities during 1996.

#### Plan of Protection for Suisun Marsh

The Plan of Protection for Suisun Marsh, published under the requirements of Decision 1485, was designed to ensure that Decision 1485 standards are met. The plan contained a proposal to monitor water quality; develop management plans for managed wetlands; install, in phases, physical facilities to control channel water salinity for interior marsh sloughs; and provide mitigation for construction impacts associated with physical facilities.

The plan also included a programmatic environmental impact report that discussed actions identified in the plan and the effects of each action. According to the plan, the Department and USBR, as lead agencies, would prepare supplemental environmental documentation if new significant impacts were identified during the planning and implementation of subsequent actions.

At USBR's request, the SWRCB reset the timetable to comply with the conditions in Decision 1485 from a completion date of October 1, 1984, to a staged implementation plan to be completed by October 1, 1997. The revised time schedule was specified in a letter issued on December 5, 1985, and specific revisions were made to Table II of Decision 1485. The revision also includes options for compliance times and locations for salinity compliance stations.

The Plan of Protection suggests six phases to provide protection for the Suisun Marsh. Phase I (Initial Facilities) and Phase II (Suisun Marsh Salinity Control Gates) are complete. In 1990, Phases III and IV, directed at the western Suisun Marsh, were combined and identified as the Western Suisun Marsh Salinity Control Project. Discussions about Phase V, the Grizzly Island Distribution System, were initiated with SRCD in 1993. The Potrero Hills Ditch was identified as Phase VI. In 1995, the Department, USBR, DFG, and SRCD agreed that the additional large-scale facilities in Phases III through VI are not necessary for salinity control in the Suisun Marsh because of the Delta hydrology resulting from implementation of the 1995 Bay-Delta Plan, and the effectiveness of the Suisun Marsh Salinity Control Gates. The parties arrived at this decision based on data collection with SMSCG operation and departmental model studies conducted in support of the 1995 Bay-Delta Plan and EIR for its implementation as described in this section.

Morrow Island Distribution System. The Morrow Island Distribution System was constructed in 1980 and consists of two ditches—M-line and C-line—that connect Goodyear Slough to Suisun Slough and

Grizzly Bay through Morrow Island. The distribution system allows less saline water from Goodyear Slough to be tidally pumped as needed to flood the eastern side of Morrow Island.

The proposed maintenance includes removing accumulated sediment from the distribution ditch to restore adequate capacity and flows, using the dredge material to rebuild the levees to their original design elevation, and replacing the outlet culverts on C-line and M-line.

In 1996, Department staff conducted the following activities:

- continued preparation of environmental documentation;
- obtained right-of-way agreements with property owners;
- conducted sediment and soil sampling to update environmental documentation, and
- completed maintenance of the leaky C-Line outfall culvert.

MIDS maintenance dredging began in 1997. After the material dries (about a year) and is reshaped, the levees will be rebuilt and the roadways resurfaced with gravel.

In October 1996, emergency repairs were conducted on the M-Line of the MIDS. A 5-foot diameter sinkhole located over the eastern culvert pipe was temporarily filled and clearance was obtained to complete further emergency repairs. Examination of the outfall culverts revealed that the culverts must be replaced because of excessive corrosion. The levee section at the culvert location is weakened from the sinkhole and requires repair. Department staff obtained the required clearance from the U.S. Army Corps of Engineers to replace the outfall. The work should be conducted in September or October 1997.

Roaring River Distribution System. The Roaring River Distribution System was completed and became operational in 1980. Fish screens were installed and tested on two intake culverts in 1980, and on the remaining six culverts in 1983. The screens at the Roaring River intakes were originally designed for an average approach velocity of 0.5 feet per second. (Design approach velocity is the design

flow divided by the screen area.) However, the U.S. Fish and Wildlife Service's fish screen criteria is 0.2 fps approach velocity for the protection of delta smelt. The Department's Operations and Maintenance and Suisun Marsh Planning staff determined that the 0.2 fps approach velocity could be attained by automating the intake slide gates.

During 1996, the Department's Operations and Maintenance staff developed a plan and purchased the necessary hardware and software to automate the slide gates on the eight intake culverts of the RRDS. The automation is intended to maintain the 0.2 fps fish screen criteria while providing more water to DFG and private wetland managers.

In November 1996, the Department designed and installed a flashboard riser on the existing drainage culvert on the eastern end of the distribution system. The flashboard riser will allow higher water levels to be maintained in the system, reducing the approach velocities through the fish screens and improving diversions from the distribution system. Rock was also placed under the discharge pipe in the distribution system to provide support and fill existing scour.

### **Suisun Ecological Workgroup**

The Department convened the Suisun Ecological Workgroup in May 1995 at the request of the SWRCB in the 1995 Water Quality Control Plan and Water Right Order 95-6. SEW is a technical group established to review the scientific basis of the current channel water salinity standards in the Suisun Marsh and make recommendations to the SWRCB regarding current and future water quality objectives.

SEW consists of representatives from the Department, DFG, USFWS, SRCD, National Marine Fisheries Service, USBR, EPA, Regional Water Quality Control Board (San Francisco Bay Region), San Francisco Bay Conservation and Development Commission, California Native Plant Society, Ducks Unlimited, California Waterfowl Association, San Francisco Estuary Institute, and MWD, among others. In October 1995, five technical subcommittees were formed focusing on brackish marsh vegetation, waterfowl habitat, wildlife, aquatic habitat, and hydrodynamics and water quality.

During 1996, SEW met bimonthly. The major activity shifted to the technical subcommittees with SEW serving to review and comment on subcommittee work. The aim of the subcommittee work is to evaluate the effects of the Western Marsh Salinity Standards (1995 WQCP and Water Right Order 95-6) on various resources and to develop recommendations for resource-specific water quality objectives, future studies, and compliance monitoring reports. The subcommittees are scheduled to complete their analyses in 1997.

SEW's next step will be to evaluate the impacts of resource-specific water quality objectives and to develop appropriate multiresource (ecosystem) objectives. SEW plans to complete the evaluation by October 1998, when it will present its recommendations to the SWRCB.

In June 1996, a SEW home page (http://www.iep. water.ca.gov/sew/) was added to the Interagency Ecological Program fileserver. The home page contains meeting agendas, summaries, and subcommittee work plans. In the future, it will also contain consensus reports, maps, and other information.

In October 1996, SEW became an IEP Project Work Team. Benefits of becoming a PWT under IEP include:

- increased recognition;
- · access to broader peer review process;
- more direct support from various groups involved in the IEP process; and
- SEW contribution to the IEP Newsletter.

Products required by IEP include quarterly reports, a yearly study plan, and an annual report.

### **Acid-Water Study**

Habitat management practices in the Suisun Marsh produces water of various shades of red and orange, as well as acid soils. An agreement was made in 1995 between the Department, SRCD, USBR, DFG, the National Biological Service (now the Biological Resources Division of the U.S. Geological Survey) and the California Waterfowl Association to fund a study evaluating the extent, duration, distribution, and quality of acid/red water, and its effect on water-

fowl use of the marsh. During 1996, the use of orange/red-hued water by wintering waterfowl was aerially monitored in the marsh and examined in an experimental pen study. The water chemistry (pH, specific conductance) and physical characteristics (surface area, depth, turbidity, color) of orange/red-hued water and other colored (non-orange/red) water in the marsh were measured. Based on the results obtained from the first year of the study, no evidence was found to suggest that ducks avoid orange/red-hued water. The study was extended a second year to obtain additional information and verify the initial results. A report is expected by the end of 1997.

### **Fisheries Monitoring**

The University of California at Davis has sampled for fish in the Suisun Marsh since 1979, with funding from the Department and USBR. During 1996, sampling continued as in previous years.

Data from the sampling indicate a continuation in the long-term trend of declining abundance of fish in the marsh. The decline seems independent of the operation of the Suisun Marsh Salinity Control Gates. From 1994 to 1995, researchers noted a geographic shift in the abundance and occurrence of larvae in the marsh. Because of the presence of delta smelt, long-fin smelt, and splittail eggs and larvae, it is likely that these species used the marsh for spawning and rearing in 1995. Results from 1996 sampling was available in March 1997.

DFG has monitored neomysis and phytoplankton densities in the marsh since the late 1970s and young striped bass abundance since 1959. In 1996, monitoring continued as in previous years. Results from the 1996 sampling will be available in mid-1997.

### **Suisun Marsh Salinity Control Gate Activities**

### **Suisun Marsh Salinity Control Gate Operation.**

The Suisun Marsh Salinity Control Gates are operated from September 1 to May 31, and only as needed to meet salinity standards, so as to minimize fish concerns related to predation and impedance. To date, the scheduling of gate operation and the installation or removal of the flashboards have varied for several reasons: because of existing salinity condi-

tions, at the request of the fisheries agencies for sensitive species concerns, or to allow for special studies.

Because of low-salinity conditions in the marsh in winter 1996 (1995-1996 control season), SMSCG operation was not needed to meet salinity standards and the flashboards were not installed. This was the first time since the installation of the SMSCG that they were not needed for salinity control during an entire control season.

As a result of increasing salinity in the marsh, the flashboards were installed and the gates were operational from November 13 to 26, 1996 (1996-1997 control season). On November 27, operation of the SMSCG stopped because salinity in the marsh was well below the SWRCB standards. The gates remained open with the flashboards installed for the remainder of 1996.

Adult Salmon Migration Study. Studies to assess the effects of SMSCG operation on adult salmon migration were conducted in 1993 and 1994. The studies were done to fulfill a Corps permit requirement for the construction and operation of the SMSCG. Adult salmon were captured using gill nets, and sonic tags were inserted into their stomachs. Stationary and mobile hydrophones and receivers tracked movement of each tagged salmon.

In 1996, the results of the 1993 and 1994 studies were published in the following reports:

- Adult Salmon Migration Monitoring During the Various Operational Phases of the Suisun Marsh Salinity Control Gates in Montezuma Slough (August-October 1993); and
- Adult Salmon Migration Monitoring During the Various Operational Phases of the Suisun Marsh Salinity Control Gates in Montezuma Slough (September-November 1994).

Results from the studies indicate that SMSCG operation may have delayed and/or blocked salmon migration upstream and decreased the number of salmon passing through the structure. While the 1993 and 1994 adult salmon migration studies indicated that the SMSCG are affecting the migration of salmon, the biological significance of the effect on the chinook salmon population is unknown. The Department is currently assessing the population level implications and identifying potential mitigation measures. In 1997 the Department will distribute draft reports describing their findings to an interagency team for review. The Interagency Steering Committee will base recommendations for mitigation on the outcome of the evaluation.

Van Sickle Island Revegetation Monitoring. To install the SMSCG in Montezuma Slough, about 70,000 cubic yards of material were excavated and placed at Dredge Spoil Site No. 2 on Van Sickle Island by October 1988.

Permit conditions require an annual plant survey at the dredge spoil site for three growing seasons after the removal of dredge material to help determine the extent of reestablished salt marsh harvest mouse habitat. Under a departmental contract, a monitoring plan was prepared by DFG—Monitoring Plan to Evaluate Habitat Recovery for the Salt Marsh Harvest Mouse at the Montezuma Slough Dredge Disposal Site on Van Sickle Island.

In December 1996, DFG completed the *Monitoring Report for the Revegetation of Dredge Disposal Site Number 2 on Van Sickle Island*, which contains the results of the 1994 and 1995 salt marsh harvest mouse trapping and vegetation monitoring. Trapping efforts documented the presence of salt marsh harvest mouse in the area. Vegetation monitoring indicate that 8.4 acres of the dredge disposal site had revegetated, while 6.3 acres did not meet criteria established by the USFWS for suitable salt marsh harvest mouse habitat. Final vegetation monitoring will be conducted again in 1997 as outlined in the monitoring plan; however, further trapping is not necessary because salt marsh harvest mice have been documented on the site.

# State Water Resources Control Board Activities

Water Quality Monitoring and Compliance. The Department's Environmental Services Office staff conducted SWRCB compliance monitoring within

the Suisun Marsh during 1996 (Figure 6-2). During the 1995-96 control season, the salinity standards specified in Attachment B of D-1485 (as amended in Water Right Order 95-6) were in effect. Attachment B specifies compliance at four locations in the Suisun Marsh area. Three locations are within the marsh: National Steel (S-64); Beldons Landing (S-49); and Sunrise (S-21). One compliance location, Collinsville (C-2), is in the western Delta.

During winter 1996, the high outflow conditions in the Delta and localized tributary runoff into Suisun Marsh resulted in low specific conductance values measured in the marsh, and all salinity standards were met for the calendar year.

During 1996, ESO continued monitoring flow at two tributary locations and three tidal locations in the marsh. Data collected at these locations are used to help understand hydrological, tidal, and other factors that can influence salinity levels within the marsh. In conjunction with modeling studies, these data are used to help determine alternative methods of reducing salinity levels in the marsh during dry periods.

### Suisun Marsh Annual Data Summary Report.

Data collected and analyzed in the Suisun Marsh during water year 1994 were reported in the *Suisun Marsh Monitoring Program Data Summary*. In this annual report, published in July 1996, the Department presented results of studies and surveys in water year 1994 associated with:

- the SMSCG fishery impacts analysis;
- · waterfowl food plant production;
- · marsh-wide vegetation conditions;
- · waterfowl populations;
- salt marsh harvest mouse population;
- · channel salinities; and
- soil and pond water salinities on managed wetlands.

This report also discusses scheduled maintenance for departmentally-maintained mitigation facilities and monitoring program revisions.

Results for water years 1995 and 1996 will include a summary of data collected during the 1994-95 Western Suisun Marsh Salinity Control Test.

### **Suisun Marsh Technical Advisory Committee**

During 1996, Department staff facilitated four Suisun Marsh technical advisory committee meetings. Meetings are scheduled quarterly to increase staff time and resource efficiency. These meetings were attended by representatives from federal, State, and local agencies and Suisun Marsh landowners. Meeting notes were distributed to more than 60 people including SWRCB staff.

### **Suisun Marsh Expenditure History**

Table 6-2 summarizes Suisun Marsh expenditures and reimbursements administered by the Department for calendar years 1968 through June 1997.

From 1968 through June 1997, the Department disbursed over \$78 million for planning, design, environmental documentation, construction,

maintenance, monitoring, and permit compliance in support of implementing the Plan of Protection for the Suisun Marsh, the Suisun Marsh Preservation Agreement, and to meet standards set by the SWRCB. USBR reimbursed the Department about \$31.2 million (39.9 percent), and the California General Fund has reimbursed about \$9.5 million (12.1 percent). These figures do not include up-front payments made by USBR for staff and other direct costs, as well as about \$5.7 million in USBR interest payments during 1988 and 1989.

Annual figures are reported in Table 6-2 for the Department's up-front payments and cumulative expenditure balance, USBR reimbursements, and General Fund reimbursements.

Information in this chapter was contributed by the Environmental Services Office, the Division of Operations and Maintenance, and the Division of Planning and Local Assistance.

Table 6-2
Suisun Marsh Expenditure and Reimbursements, as of June 30, 1997
(in Dollars)

Calendar Year	Upfront Paymen	t	USBR Reimburs	ement	General Fu Reimbursen		Cumulative Departmental Expenditure Balance (CXB)(a
1968	10,571		0		0		10,571
1969	34,182		0		0		44,753
1970	23,343		0		0		68,096
1971	1,042		0		0		69,138
1972	47		0		0		69,185
1973	0		0		0		69,185
1974	0		0		0		69,185
1975	2,709		0		0		71,894
1976	32,961		0		0		104,855
1977	37,475		0		0		142,331
1978	350,831		0		0		493,162
1979	3,660,096		0		0		4,153,258
1980	5,005,759		0		0		9,159,017
1981	2,964,977		0		0		12,123,995
1982	2,955,702		2,500,000		0		12,579,697
1983	2,754,091		0		0		15,333,788
1984	2,418,345		0		0		17,752,133
1985	2,332,776		0		0		20,084,909
1986	6,495,323		0		0		26,580,232
1987	13,600,701		0		0		40,180,933
1988	7,456,296		17,368,725		9,478,000	(b	20,790,504
1989	2,341,843		1,219,691		0		21,912,656
1990	3,030,016		695,450		0		24,247,222
1991	6,222,531		2,925,429		0		27,544,324
1992	2,737,242		1,174,655		0		29,106,910
1993	2,979,030		238,130		0		31,847,810
1994	3,192,130		1,962,549		0		33,077,391
1995	2,721,318		647,138		0		35,151,571
1996	3,401,913		1,482,396		0		37,071,088
1997	1,439,902	(g	942,805		0		37,568,185
1998	0	(h	0		0		0
1999	0		0		0		0
2000	0		0		0		0
Total	\$78,203,153	(c	\$31,156,968	(c d	\$9,478,000	(е	\$37,568,185 (f

- a) CXB = (Previous Year's CXB + Departmental Upfront Payment) (USBR + General Fund reimbursements.
- b) Under State Assembly Bill 1442, the General Fund paid 20% of the Department's Upfront Payment through June 1988, amounting to \$9,478,000.
- c) Does not include USBR Upfront Payments for staff and other direct costs.
- d) USBR has paid 39.9% of total Departmental Upfront Payment.
- e) General Fund has paid 12.1% of total Departmental Upfront Payment.
- f) The Department paid 48.0% of total Departmental Upfront Payment.
- g) Includes January through June 1997.
- h) For years 1998 to 2000, figures will be included when available.

USBR paid an additional \$5,111,831 as interest in 1988.

USBR paid an additional \$607,175 as interest in 1989.

# Chapter 7 Local Assistance Programs



Repairs to the Sutter Bypass levee during January 1997 floods

### **Significant Events**

- Two major events occurred under the Department's water conservation programs: (1) the
  Urban Water Conservation Council revised the
  Best Management Practices and (2) the Agricultural Water Management Council was formed.
  The Department is a signatory of the Memorandums of Understanding that created both councils, which are comprised largely of local water suppliers. In supporting them, the Department provides assistance to more than 140 agencies.
- The Department's California Irrigation Management Information System expanded to 93
  weather stations and current data was put on an Internet site. The Department currently provides "real-time" evapotranspiration information to 30 local agencies and receives over 2,500 requests for CIMIS data each month.

- In 1996, the San Joaquin Valley Drainage Implementation Program adopted an Action Plan that will update the 1990 Drainage Management Plan.
- The Department, which stopped treating drainage at the research site near Tranquility in 1995, continued to help local agencies develop drainage treatment and reuse technologies.
- The Department continued to solicit proposals for drainage reduction projects from the SWP service area.
- The Department continued to fund and coordinate research on evaporation ponds in the SWP service area.

hrough the Division of Planning and Local Assistance, the Department of Water Resources manages or participates in several programs to assist local agencies and benefit State Water Project contractors.

### **Davis-Grunsky Act Program**

At the inception of the Davis-Grunsky Act Program, loans were made at the current market interest rate. In 1967, the legislature fixed the interest rate at 2.5 percent to be more accessible for the low-income agencies that the program was designed to assist. The maximum loan repayment period was set at 50 years. At the Department's discretion, some agencies were given an initial 10-year deferment with the accumulated interest amortized over the repayment period.

The Department's ongoing administration of the program provides oversight of the 32 recreation grant projects to ensure compliance with the contracts. Administration costs are recovered from the revenues provided by the repayment of Davis-Grunsky loans. The recreation grant contracts are being amended to reflect actual facilities constructed and the modification of the Department's function of fee oversight.

### **Current Activities**

In fiscal year 1996-1997, the Davis-Grunsky Act program funded the following agencies and activities.

**Big Bear Municipal Water District.** Phase II repairs of Bear Valley Dam, San Bernardino County, have been delayed because Caltrans has not constructed the required replacement road downstream of the dam. The \$380,000 of Davis-Grunsky grant contract funds approved for Phase II construction remain available to the district.

**Littlerock Creek Irrigation District/Palmdale Water District.** The Department has disbursed \$2.7 million of the \$3 million grant approved to repair this project in Los Angeles County. The recreational facilities associated with this project are complete. Project audit and subsequent release of the remaining \$300,000 withheld is expected in the third quarter of 1998.

### **Agricultural Drainage Program**

The Department continues to participate in the multiagency San Joaquin Valley Drainage Implementation Program. During December 1996, the program's Management Group approved in concept a "Proposed Action Plan," which was advanced by an association of local districts, the University of California, and the California Department of Food and Agriculture. The Proposed Action Plan will update the 1990 Management Plan and will be carried out in three stages.

The first stage will consist of two concurrent, coordinated, yet independent tasks. Firstly, subarea committees will assess the feasibility of adopting the management recommendations proposed in the management plan and will prepare reports on San Joaquin Valley drainage problem areas. Secondly, a set of technical committees will evaluate the current technical and economic management options, including salt utilization plans, which are proposed in the management plan.

During the second stage, an ad hoc Coordination Committee will synthesize the information from the first stage into a report and, based on technical and economic considerations, identify interactions and trade-offs among management options and develop a set of recommendations.

The third stage will use the recommendations formulated during the second stage, along with input from the public, to formulate an updated management plan and identify acceptable mechanisms that will encourage the adoption and voluntary implementation of the updated management plan.

The Department will participate in this effort at all stages, assist the subarea committees, and play a major role in drafting the technical committee reports. A data report for the Tulare Lake and Kern

County subarea, compiled by the Department at the request of the Subarea Committee, will be released in fall 1997.

### **Drainage Monitoring and Evaluation**

The Department continues to participate in a cooperative program with the U.S. Bureau of Reclamation. The program makes salinity levels from the San Joaquin River system available through real-time monitoring equipment. This information system provides local, State, and federal agencies with real-time data to assist in managing drainage releases to the San Joaquin River. Although future funding from outside sources for this program has not been identified, the Department has made a commitment to continue this worthwhile program.

The Department continues to monitor shallow groundwater levels. Electrical conductivity data was collected in 1996 and an EC contour map of high groundwater areas has been drafted for the northern portion of the Department's San Joaquin District. The Department also continues to collect shallow groundwater samples for chemical analysis.

### **Drainage Reduction and Reuse**

The Department continues to work on demonstration and education programs, promoting the practice of improved irrigation and drainage management techniques. The Department completed the following related reports:

- Survey of Linear Irrigation System in California;
- Demonstration of Irrigation Scheduling Workshop and Follow-up Field Demonstration in Kern County;
- · Shallow Groundwater Management; and
- Boron Accumulation and Toxicity in Agroforestry Systems.

In addition, along with several other sponsors, the Drainage Reduction and Reuse Program sponsored advances in irrigation symposiums and workshops. Several presentations were made in areas such as irrigation systems technology and on-farm water and energy management. Recently developed information on irrigation and drainage practices demonstrated that surface and subsurface water management are the first steps for efficient water use.

Also, the Department sponsored a workshop to discuss the results of the linear move survey and ways to increase growers' awareness of such systems. The meeting was conducted in the Southern California Edison's AgTAC in Tulare.

The Department continued work on the following projects:

- Growth and Water Relations of Plant Species Suitable for Saline Drainage Water Reuse Systems:
- Study of On-Farm Irrigation and Drainage Management on Cracking Soils to Reduce Drainage;
   and
- Role of Agroforestry System in Reducing Selenium Concentration in Drainage Water by Volatilization Process.

These projects, initiated in the 1994-95 fiscal year, are continuing; reports will be available as they are completed. The Agricultural Drainage Reduction and Reuse Program completed the Request for Proposal in May 1997. The RFP solicited proposals to study and demonstrate new irrigation management practices in different geohydrological areas of the State, particularly the SWP service area. The new activities will include on-farm source control, water reuse, economic incentives, management of shallow groundwater, training, and education. The following list of proposals have been selected and are at different stages of the contracting process:

- Reduction of Drainage Preirrigation by Utilizing Sprinkler, Skip-row, and Alternate Furrow Irrigation in Cotton;
- Irrigation Management Education and Training Workshops;
- Educational Workshops for On-Farm Irrigation Management Advances for Source Reduction of Deep Percolation and Drainage; and
- · Drain Water Reuse Agroforestry Trial.

These projects are mainly in the SWP service area.

### **Drainage Treatment**

The Department continues to investigate technologies to treat agricultural drainage water. The studies and testing at the multiagency drainage treatment test

facility near Tranquillity, in western Fresno County, have been completed. The principal activity was a bacterial selenium reduction/removal test that achieved reduction rates of up to 90 percent in a 1994 pilot-scale operation. Upflow anaerobic sludge blanket reactors, fluidized bed reactors, and a packed bed reactor were tested. Slow sand filtration was evaluated as a final, polishing step. Operations ceased in November 1995. A summary operation report is being prepared.

The Department continues to provide assistance to local agencies in the development, collection, and evaluation of data from projects that investigate treatment and reuse of agricultural drainage water. The Flow-Through Wetland Project in the Tulare Lake Drainage District investigates selenium removal efficiencies of various species of wetland plants. The Department will continue to provide both biological and engineering assistance to this project. In other work, plans are being developed for a three-acre, salt-gradient solar pond system. This system, if agreements are reached, will be placed next to currently operating evaporation ponds and will demonstrate the ability to provide energy and store salts.

### **Evaporation Ponds**

Operators of the agricultural evaporation ponds have implemented the waste-discharge requirements as adopted by the Central Valley Regional Water Quality Control Board in August 1994. Clean wetlands provide compensation for operation of the evaporation ponds; pond management for some systems have changed; and most structural modifications have been completed at the evaporation basins where required. Most of these mitigation procedures were developed by researchers funded through the Department's Evaporation Pond Investigation. As required, the pond operators compiled draft progress reports for the last 3 years of implementation and efficacy of these mitigation procedures. The Department is assisting the CVRWQCB in reviewing these reports (and any other required reports) for adequacy.

Petitions filed with the State Water Resources Control Board acted to strengthen the waste discharge requirements of the CVRWQCB. SWRCB held hearings on these petitions and remanded the EIRs of four operators back to the CVRWQCB for further

environmental assessment. In response to the SWRCB's decision, and with guidance from the CVRWQCB, these four pond operators are rewriting their environmental impact reports on waste discharge permits. Several other pond operators came to agreement with the petitioners before the SWRCB finished its hearings and were not required to rewrite their EIRs.

The Department continues to fund and coordinate research on the evaporation ponds. A study on the nesting success of shorebirds, conducted by the Biological Resources Division of the U.S. Geological Survey and funded by the Department, was completed, although the final report has been delayed.

The Westlake Demonstration Wetland, a cooperative project of the Department, Westlake Farms, USBR, U.S. Fish and Wildlife Service, and the Department of Fish and Game, has been operating since fall 1994. Information collected by the Department, USFWS, and consultants to Westlake Farms documented a high level of successful breeding by shorebirds. This information has been valuable in the SWRCB proceedings discussed above and will help design shorebird wetlands throughout the western United States.

The Department drafted a report on a study that compares invertebrate productivity within the compensation wetlands and evaporation basins. This study will be useful to the evaporation pond operators and the regulatory agencies in assessing the usefulness of the mitigation wetlands.

During the next two years, the Department will conduct studies at Rainbow Ranch evaporation basin in Kern County. Operators are required to monitor selenium concentrations, along with other parameters, in shorebird eggs. Based on studies that the Department and USFWS conducted in the past, a relationship between water-borne selenium and selenium concentrations found in eggs has been described for the evaporation basins. For the last few years, the selenium levels in shorebird eggs at Rainbow Ranch have been lower than expected. Future studies conducted by the Department and Rainbow Ranch, Inc., will help explain why shorebirds at their basin do not accumulate selenium within their tissues at the expected levels.

# **Environmental Impact Documents Review**

The Environmental Review Section in the Division of Planning and Local Assistance screens State Clearinghouse documents and circulates SWP-related materials for review by the Department's four districts, as well as the divisions of Planning and Local Assistance, Operations and Maintenance, and Engineering. In addition, other divisions and offices are notified of activities and are requested to comment when their expertise is required.

Some environmental impact documents handled by the State Clearinghouse concern proposed activities that would affect the SWP. In 1989, an early warning system was developed by the Environmental Review Section under which State Clearinghouse documents are regularly reviewed to identify any public safety or liability issues arising from the proposed activities.

In the first year of operation, 25 environmental documents significant to the SWP were reviewed. In 1996, about 3,000 documents were screened by the Environmental Review Section with 124 referred for detailed review. The Division of Operations and Maintenance received 43 of these referrals. In addition to formal referrals, about 200 informal referrals were made to Department staff. These documents were referred to staff for information rather than comment.

Of the documents submitted for formal review, about 25 percent generated written comments submitted to the lead agency through the State Clearinghouse. These comments included safety and water supply concerns, encroachment on physical facilities, and water quality issues. Additional Department actions involving such items as encroachment permit submittals and informal comments have taken place, but cannot be tracked by the Environmental Review Section. From 1995 to 1996, the number of referrals for formal review and comment has increased by about 30 percent.

In December 1995, the weekly summary report on documents received from the State Clearinghouse became available by e-mail, increasing the reports'

availability and speed of distribution, while actually reducing the distribution cost. In addition, the quality of information and speed of distribution increased enough to result in a greater number of requests for documents. The increase in requests was significant enough to start tracking document requests beginning in February 1996. Approximately 145 reports were requested by Department staff in 1996. Of these, nine were specifically related to SWP concerns. In addition, Environmental Review staff filled five requests by SWP contractors.

The Environmental Review Section ensures adequate review copies of documents of special interest to the Department. In 1996, the Environmental Review staff requested documents relating to the Mokelumne Aqueduct from the East Bay Municipal Utility District and documents on the Lake Perris Power Cove from the Department of General Services.

### Water Conservation Bond Laws

To assist local agencies in obtaining financing for their water management programs, California voters passed three bond laws between 1984 and 1988 that authorized the Department to provide low-interest loans to fund project feasibility studies or construction activities. The Clean Water Bond Law of 1984 (Proposition 25) authorized \$10.5 million for water conservation projects; the Water Conservation and Water Quality Bond Law of 1986 (Proposition 44) authorized \$75 million for water conservation and groundwater recharge projects; and the Water Conservation Bond Law of 1988 (Proposition 82) authorized \$60 million for water conservation, groundwater recharge, and new local water supply improvements.

Generally, construction loans were available for up to \$5 million per project, with repayment up to 20 years at reduced interest rates for most programs. Among other loan approval criteria, applicants for these loans must demonstrate that project benefits exceed its costs. Typical types of projects fall under the following three categories:

### **Water Conservation**

 Improvements to, or replacement of, distribution and storage systems;

- · Lining and piping ditches;
- · Water meters; and
- · Water recycling distribution systems.

### **Groundwater Recharge**

- Land and facilities for new artificial groundwater recharge; and
- Expansion of existing artificial groundwater recharge facilities.

### **Local Water Supply**

- New conveyance and/or storage facilities;
- · Groundwater facilities; and
- Desalination (ocean or brackish groundwater recovery).

Organized by project type, Table 7-1 summarizes the number of projects and funds committed for each of the three bond laws. As of June 30, 1997, more than \$120 million has been committed to projects under all three bond laws, which amounts to most of the authorized funding.

In 1996, California voters approved the Safe, Clean, Reliable Water Supply Act (Proposition 204). It provides an additional \$25 million for water conservation and groundwater recharge projects, \$25 million for local projects, and \$5 million for a single grant to finance groundwater recharge facilities in an area adversely impacted by the Base Closure and Realignment Act. Applications for funding under this program should be available from the Department's Division of Planning and Local Assistance in spring 1998, in accordance with regulations.

Table 7-1
Water Conservation Bond Laws Projects and Funding
(Millions of dollars)

Type of Project	Projects (a	!' /-
71:	T TOJECIS (a	Funding (a
Water Conservation	7	\$ 9.7
Water Conservation	22	\$36.0
Groundwater Recharge	9	\$28.0
Subtotal	31	\$64.0
Water Conservation	6	\$13.5
Groundwater Recharge	8	\$24.3
Local Water Supply	4	\$ 9.0
Subtotal	18	\$46.8
All Water Conservation	35	\$59.2
All Groundwater Recharge	17	\$52.3
All Local Water Supply	4	\$9.0
All Projects	56	\$120.5
	Water Conservation Groundwater Recharge  Subtotal  Water Conservation Groundwater Recharge Local Water Supply  Subtotal  All Water Conservation All Groundwater Recharge All Local Water Supply	Water Conservation 22 Groundwater Recharge 9  Subtotal 31  Water Conservation 6 Groundwater Recharge 8 Local Water Supply 4  Subtotal 18  All Water Conservation 35 All Groundwater Recharge 17 All Local Water Supply 4

Information in this chapter was contributed by the Division of Planning and Local Assistance.

## **Chapter 8**

# **Legislation and Litigation**



Courtesy of The California State Capitol Museum, California Department of Parks and Recreation

The Assembly Chambers of the California State Legislature

## **Significant Events**

<ul> <li>Proposition 204 was approved by California voters on November 5, 1996, providing funding for a number of programs, including the Central Valley Improvement Program, Bay-Delta Agree-</li> </ul>	ment, flood control, Delta levee rehabilitation, water conservation and groundwater recharge, and other related projects.

ithin the Department of Water Resources, the Assistant Director for Legislation monitors State and federal legislation introduced or enacted, including bills or laws that could impact the State Water Project. Similarly, the Office of the Chief Counsel tracks litigation of potential significance to the SWP and manages litigation involving SWP operations.

### Legislation

# AB 360 (Hannigan) (Chapter 601, Statutes of 1996) Delta Flood Protection Act Amendment

This law extends and broadens the authority of the Department to: (1) conduct special flood control projects at an additional eight islands in the West Delta, and on approximately 12 miles of levees bordering northern Suisun Bay; (2) improve riparian, fisheries, and wildlife habitat as part of special flood control and levee subventions projects; (3) add federal "project" levees to the special projects and subventions program; (4) assist the Resources Agency in preparing recommendations for beneficial reuse of dredge material; (5) prepare a Delta levee emergency response plan; (6) cooperate with the U.S. Army Corps of Engineers to develop and implement levee rehabilitation and environmental enhancement; and (7) continue to administer the program through July 1, 2006. Before SB 360 could become effective, Proposition 204 had to be approved by the voters. Proposition 204 was approved on November 5, 1996.

# AB 1890 (Brulte) (Chapter 854, Statutes of 1996) Electric Industry Restructuring

This law amends the Public Utilities Act to require investor-owned and municipal utilities to seek Federal Energy Regulatory Commission approval to restructure California's electric industry to ensure reduced rates to consumers.

# AB 2334 (Cortese) (Chapter 581, Statutes of 1996) Geothermal Heat Exchange Wells

This law requires the Department to develop standards for the construction, maintenance, abandonment, or destruction of geothermal heat exchange wells.

# SB 900 (Costa) (Chapter 135, Statutes of 1996) Safe, Clean, Reliable Water Supply Act of 1996

This law would authorize \$995 million in general obligation bonds for financing various programs, including Delta improvements, clean water and water recycling, water supply reliability, and CALFED Bay-Delta Ecosystem Restoration. Proposition 204 was approved by the voters on November 5, 1996. See Table 8-1 for programs to be funded by Proposition 204.

# SB 1673 (Johnston) (Chapter 568, Statutes of 1996) Delta Protection Commission

This law would extend the existence of the Delta Protection Commission to January 1, 1999; require it to meet only bimonthly; and repeal the 10 percent assessment on fines for violations occurring in the Delta as a source of funding for the Commission.

### Litigation

As of June 30, 1997, the Department was involved in a number of court cases related to management of the SWP. In addition, the Department monitored other cases that could significantly impact management of the SWP.

# North Delta Water Agency v. State of California

In 1994, the North Delta Water Agency brought suit against the Department, seeking declaratory relief regarding departmental obligations under the 1981 water quality contract. The 1981 contract provides that the Department is to meet certain water quality standards, tested for at Emmaton at Sherman Island, and provide permits relocating the Emmaton standard to Threemile Slough upon completion of an

## Table 8-1 Programs Funded by Proposition 204

Program	Funding				
Central Valley Project Improvement Program	\$93M, State share for fish/wildlife restoration required by CVPIA or the courts; administered by the Department and DFG.				
Category III of Bay-Delta Agreement	\$60M, nonflow related projects, administered by Resources Agency.				
Delta Levee Rehabilitation	\$25M, levee rehabilitation with net long-term habitat improvement, administered by DFG and the Department.				
South Delta Barriers Program	\$10M, State's share of nonfederal cost of south Delta barriers; administered by the Department.				
Delta Recreation	\$2M, public access to Delta land and water; Department of Parks and Recreation program.				
CALFED Bay-Delta Program	\$3M, to the Department for CALFED administration.				
Water Pollution Control Facilities	\$80M, loans to local agencies with 5:1 State/federal ratio, SWRCB program.				
Small Communities Pollution Control Facilities	\$30M, need-based grants to local communities for wastewater treatment facilities, SWRCB program.				
Water Recycling Program	\$60M, loans to local agencies for recycling projects, SWRCB program.				
Agricultural Drainage Management Program	\$30M: \$27.5M for loans for projects, except injection wells, to reduce agricultural drainage problems; \$2.5M for grants for Salton Sea, SWRCB program.				
Delta Tributary Watershed Management Program	\$15M, grants of up to \$1M, administered by SWRCB, in consultation with DFG and Department of Forestry and Fire Protection, with written comments from Resources Agency.				
Saltwater Intrusion Control	\$10M, loans to local agencies to protect groundwater from saltwater intrusion, SWRCB program.				
Lake Tahoe Water Quality	\$10M, to Tahoe Conservancy for grants for land and improvements.				
Feasibility Studies	\$10M, to the Department for studies of off-stream storage, regional water recycling, desalination, and water transfer facilities for delivering Colorado River water.				
Water Conservation/Ground Water Recharge	\$30M: \$25M for loans to departmental program for water conservation and groundwater recharge as revolving fund; \$5M for grants for communities with base closure problems.				
Local Projects	\$25M, loans (up to \$5M; or up to \$1M for land acquisition) for water development and grants for feasibility studies (up to \$500K); administered by the Department.				
Sacramento Valley Water Management and Habitat Mitigation Measures	\$25M, non-SWP/CVP funding to implement the SWRCB's Bay-Delta Water Quality Control Plan of May 22, 1995; departmental program.				
River Parkway Program	\$27M, restoration and habitat projects along rivers and streams; contingent upon appropriation by Legislature.				
CALFED Bay-Delta Ecosystem Restoration Program	\$390M, funds for CALFED recommendations for actions common to all alternatives, with trigger mechanism.				
Flood Control	\$60M, to the Department for flood control projects.				
Trigger Mechanism	Incremental expenditure of funds tied to CALFED EIR/EIS and permits.				
Continuous Appropriation	All programs, except river parkways.				
Administrative Costs	All programs.				
Low Interest Loans	All loan programs provide interest rates of 50 percent of current bond rate.				

overland facility to service agricultural lands on Sherman Island.

Under the West Delta Wildlife Management Plan, the Department proposed to purchase land on Sherman Island from willing sellers in lieu of installing an overland facility. Delays in land acquisition occurred because of differences on land prices. In the 1994 lawsuit, the NDWA asserted that the 1991 settlement agreement expired at the end of that year and

requested a judicial declaration that the Department was still obligated to meet the Emmaton standard.

In February 1995, the parties entered into a settlement agreement that included a 1-year interim agreement relating to water quality standards and drought relief, and an agreement regarding interpretation of the 1981 contract provisions relating to the overland facility.

Legislation and Litigation

Pursuant to the settlement agreement entered into in 1995, the contract between the Department and the North Delta Water Agency was amended to shift the monitoring station from Emmaton to Threemile Slough. The Department's purchase of land on Sherman Island was recognized to be in place of the planned overland facility.

### Porgans, et al. v. Babbitt, et al.

On December 7, 1993, Patrick Porgans and the California Sportfishing Protection Alliance filed a claim based on the Department and the U.S. Bureau of Reclamation 1991-92 exceedances of Decision 1485 water quality standards in the Bay-Delta Estuary. The exceedance in the salinity standards occurred during the last 2 years of the 6-year drought, which were critically dry according to the classification set forth in D-1485. In 1992, SWRCB held a hearing where the Department, USBR, and other interested parties presented information on compliance with D-1485. In 1993, after closed sessions and a review of the record regarding impacts of the exceedance, the SWRCB noted that minimal harm occurred and that it would not take any action against the Department or USBR.

The case was removed to federal district court in March 1994, where the court dismissed the claim against the federal defendants. The case was remanded to State Superior Court. Plaintiffs requested to dismiss the case and the State Superior Court dismissed the action September 9, 1996.

### Golden Gate Audubon Society v. State Water Resources Control Board

On May 31, 1991, several environmental groups filed a lawsuit to set aside the Water Quality Control Plan for the Bay-Delta Estuary adopted earlier that month by the SWRCB. The plan was adopted at the end of the second phase of the Bay-Delta hearings. In the suit, the groups allege that the plan is defective because it does not include flow objectives and that the California Environmental Quality Act was violated because the SWRCB failed to consider flow alternatives. The Department intervened in support of the SWRCB. In December 1994, the SWRCB circulated a *Draft Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary*. After public hearings and comments, the

plan was adopted in May 1995; subsequently, the Audubon lawsuit was dismissed except for a claim against the SWRCB for attorneys' fees. The Sacramento County superior court judge ruled that the plaintiffs were not entitled to attorneys' fees.

San Joaquin Tributaries Association, et al. v. State Water Resources Control Board, et al.; County of San Joaquin, et al. v. State Water Resources Control Board, et al.; and Central Delta Water Agency, et al. v. United States, et al.

As discussed above, the SWRCB adopted a water quality control plan for the San Francisco Bay/Sacramento-San Joaquin estuary in May 1995, which is based on the December 15, 1994, Principles for Agreement. The plan specifies water quality objectives for the Bay-Delta estuary. In June 1995, the SWRCB adopted Water Rights Order 95-6, which implemented parts of the May 1995 Water Quality Control Plan on an interim basis. Three different related lawsuits have been filed challenging either the plan or Water Rights Order 95-6.

In San Joaquin Tributaries Association, et al. v. State Water Resources Control Board, et al., a group of irrigation districts located on the San Joaquin River filed a lawsuit in superior court in June 1995 to set aside the May 1995 WQCP. The Department intervened in the case. The lawsuit raised a host of legal challenges, including insufficient evidence in the record to support the plan, noncompliance with CEQA, and violation of area-of-origin laws. The case was settled before it reached trial. The SWRCB agreed to hold a hearing to reconsider the Vernalis flow objective and plaintiffs dismissed the lawsuit.

In County of San Joaquin, et al. v. State Water Resources Control Board, et al., a group of public entities that receive water from New Melones Reservoir and Delta entities filed a lawsuit in superior court challenging Water Rights Order 95-6 on the basis that it failed to comply with California Environmental Quality Act, violated the statutory no-injury rule, violated the area-of-origin laws, and denied plaintiffs' due process rights. The Department was named as a real party in interest in the lawsuit. In February 1996, the trial court dismissed the case, ruling that the USBR was an indispensable party to the

case and had not been properly joined in the case. Plaintiffs appealed the case in April 1996. In May 1997, the Third District Court of Appeal issued a published opinion, affirming the trial court's decision to dismiss the case on the basis that USBR was an indispensable party. Plaintiffs petitioned the California Supreme Court for review, which was denied.

In Central Delta Water Agency, et al. v. United States, et al., three plaintiffs from the County of San Joaquin lawsuit filed an action in federal court, raising the same issues that they had raised earlier in State court, challenging the validity of Water Rights Order 95-6. The lawsuit named the Department and the Director of the Department as defendants.

In August 1996, the Department and the SWRCB filed a motion to dismiss the lawsuit on the basis of the Eleventh Amendment and other grounds. The motion was granted for both the Department and the SWRCB, except for due process claims against individual SWRCB members. This ended the Department's involvement in the lawsuit. A motion to dismiss filed by USBR was also granted with leave to amend for all claims except for the claim relating to the USBR's operation of New Melones. The Central Delta case was consolidated with another federal lawsuit, *Stockton East Water District v. United States*. In that lawsuit, Stockton East Water District challenged the USBR's operation of New Melones on a variety of legal theories.

### Planning and Conservation League, Plumas County, and Santa Barbara Citizens Planning Association of Santa Barbara County v. Department of Water Resources and Central Coast Water Authority

The Planning and Conservation League filed a law-suit on December 27, 1995, against the Department and Central Coast Water Agency, challenging the Department's implementation of the Monterey Amendment. The lawsuit alleged that the Department and CCWA had not complied with the California Environmental Quality Act. PCL amended the lawsuit February 13, 1996, alleging that the Department could not legally transfer the Kern Water Bank to Kern County Water Agency as part of the Monterey Amendment. PCL sought an injunction to stop the transfer.

After a hearing held May 17, 1996, a Sacramento County superior court judge ruled in favor of the Department and CCWA on all causes of action, and dismissed the lawsuit. In regard to the CEQA causes of action, the court ruled that the Department should have served as lead agency, but that this was a harmless error, not requiring the rewriting of the Monterey Agreement environmental impact report. The court also ruled that PCL had failed to join indispensable parties in the lawsuit, including the Metropolitan Water District of Southern California and Kern County Water Agency, in its cause of action to enjoin the transfer of the Kern Water Bank. On August 15, 1996, judgment was entered in favor of the Department and CCWA.

As a result of the trial court's ruling, the Department proceeded to implement the Monterey Amendment, including transferring the Kern Water Bank to Kern County Water Agency. On August 20, 1996, PCL appealed the decision to the Third District Court of Appeal and sought a writ to prevent further implementation of the Monterey Amendment during the appeal. The Department and CCWA opposed the writ. The Court of Appeal denied the writ application on September 26, 1996.

On November 26, 1996, Kern County Water Agency and other contractors moved to have the appeal dismissed as it related to the trial court's ruling on indispensable parties. The motion was based on PCL's failure to file the appeal on this ruling in a timely manner. The Court of Appeal ruled in favor of KCWA and the other indispensable parties and dismissed the appeal against them. PCL petitioned the California Supreme Court for review, which was granted on the issue of whether PCL filed its appeal in a timely manner. The Court of Appeal suspended the remainder of the appeal pending a decision by the Supreme Court. The Supreme Court is expected to issue an opinion in 1998.

On May 2, 1996, the San Bernardino Municipal Water District filed a cross-complaint against the Department as part of the Monterey litigation. On October 22, 1996, the Department and San Bernardino entered into an agreement dismissing the San Bernardino cross-complaint without prejudice. The Department and San Bernardino also agreed to enter

into studies to resolve the problems relating to high groundwater levels in San Bernardino's service area.

# Southern California Bass Council, et al. v. State of California

In late November 1994, the Southern California Bass Council, the Sierra Club, and the Audubon Society filed suit against the Department, challenging under CEQA the Department's Mitigated Negative Declaration prepared for the reconstruction of the intake tower at Silverwood Reservoir. The Department was directed by the Federal Energy Regulatory Commission to replace the existing intake tower to the San Bernardino Tunnel because the existing tower did not meet current seismic standards. The petitioners claimed the Department's environmental documentation did not provide sufficient mitigation for adverse effects on the environment, including impacts on fisheries and the bald eagle.

At an April 1995 hearing in San Bernardino Superior Court, Judge John Kennedy, Jr., ruled that the Department's mitigation measures were indeed sufficient to minimize any significant impacts on the environment. The ruling validated the Department's plans to mitigate possible adverse effects on fish and wildlife resources, including the bald eagle, and recreation at the lake.

In June 1995, the petitioners filed an appeal from the trial court judgment. No order for stay (to prevent work from proceeding) was filed, and construction at Silverwood began in September 1995.

On October 17, 1996, the Court of Appeal affirmed the Mitigated Negative Declaration in all respects but one. As to fishery mitigation, the appellate court held that the Mitigated Negative Declaration should have included either a commitment to the specific nature and extent of restocking the fishery or specific standards under which the Department and the DFG would determine the nature and extent of restocking.

Petitioners then filed a petition for review with the California Supreme Court, seeking to invalidate the entire Mitigated Negative Declaration. On January 22, 1997, the California Supreme Court denied the petition for review, and jurisdiction was returned to the Superior Court. A hearing was held in

San Bernardino Superior Court May 2, 1997, and the Department presented its Fishery Mitigation Plan. Further briefing occurred on the merits of the plan, and oral argument is scheduled for December 19, 1997. Work on replacement of the intake tower was substantially completed by May 1997.

### Department of Water Resources v. Nevada Power Company

The Department and Nevada Power Company are co-owners of Reid Gardner Unit 4, a coal-fired electric generating plant near Las Vegas, Nevada. NPC operates the plant and bills the Department monthly for a portion of the costs of operation. A monthly transmission service charge, calculated according to a formula in the Participation Agreement for the plant, is included in the monthly bill. For several years, NPC has been including in the service charge the cost of constructing and operating a transmission line between Utah and Nevada. The Department believed that it received no benefit from the line, but NPC had refused to omit this part of the service charge from the Department's bill.

The Department filed suit in Sacramento County Superior Court in January 1995, seeking a declaration that the costs of the Utah/Nevada line be excluded from the Department's service charge, and seeking damages of \$1.4 million, the amount that the Department had overpaid when the suit was filed. In fall 1994, the Department had filed a similar complaint with the Federal Energy Regulatory Commission, which had taken no action by the time the suit was filed. In November 1995, the Superior Court granted NPC's motion to stay the lawsuit pending some action by FERC, but in November 1996 the court lifted the stay because FERC had failed to act. The parties participated in a mediation in early 1997, which resulted in a settlement of the dispute. The settlement agreement specifies what may be included in the transmission service charge, requires NPC to pay the Department \$250,000 in cash, and provides the Department with a specified quantity of transmission service, free of charge, for the remaining life of the Participation Agreement (an item that the Department valued at over \$900,000). The superior court lawsuit and the FERC complaint have been dismissed.

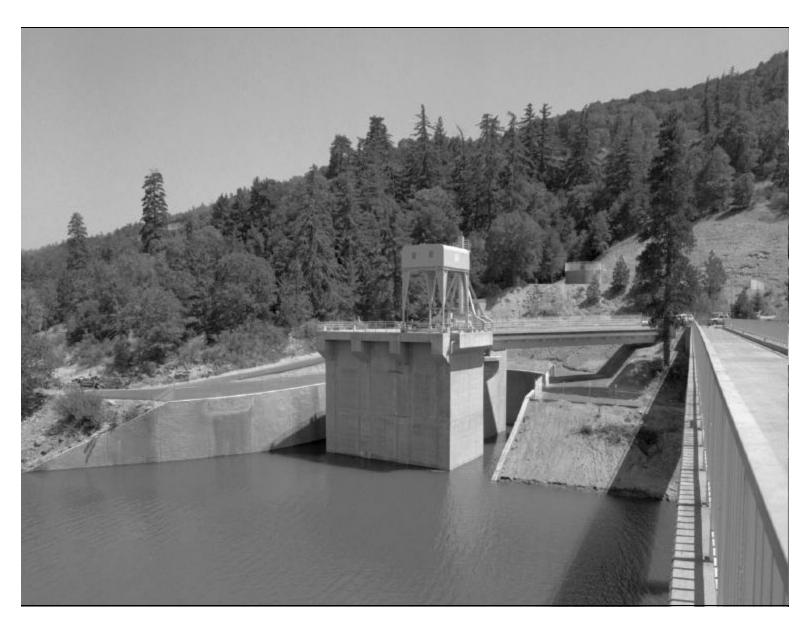
#### City of Barstow v. City of Adelanto

This action is a stream/groundwater adjudication for the Mojave River Basin. The Department was named in a cross-complaint by the city of Adelanto, which alleged that the Department should be making additional releases of water, pursuant to Fish and Game Code Section 5937, for fish populations below Silverwood Lake. The Department's position is that there is no legal support for application of Section 5937 to imported water.

The Department claims no rights to the Mojave River. However, pursuant to an agreement with Las Flores Ranch, the Department provides water to the ranch through the Mojave Siphon based on flows of tributaries into Silverwood Lake. The original diversion works of Las Flores Ranch were rendered unusable by the construction of Cedar Springs Dam and Silverwood Lake. The cross-complaint against the Department was dismissed with prejudice in summer 1995.

Information for this chapter was contributed by the Assistant Director for Legislation and the Office of the Chief Counsel.

# Chapter 9 Water Supply and Allocation



Outlet Structures at Silverwood Lake

#### **Significant Events**

- On December 1, 1995, initial requests totaled 2,687,307 acre-feet. The Department approved 75 percent of Table A or the initial request, whichever was less. A total 2,235,431 acre-feet was approved.
- By March 4, 1996, because of late storms, the Department had approved 90 percent of Table A or the initial request, whichever was less. A total 2,508,443 acre-feet was approved.
- On March 8, 1996, updated snow survey information prompted the Department to further increase the initial requests to 100 percent. A total 2,701,707 was approved.
- On December 2, 1996, the Department approved 2.4 million acre-feet of the 3 million acre-feet of requested entitlement water for long-term SWP contractors in 1997. SWP supplies were projected to meet at least 70 percent of most SWP contractors' requests. Interruptible water was made available to SWP contractors on December 2.
- SWP water deliveries for 1996 through December 31 were 2.4 million acre-feet, representing a combination of annual entitlement, carryover, interruptible, and exchange waters. This is 400,000 acre-feet more than delivered during the same period in 1995.

o meet contracted obligations to the State Water Project long-term water supply contractors, the Department of Water Resources monitors precipitation, calculates runoff, and operates facilities as required.

During each water year, from October1 through September30, the Department monitors and records precipitation, runoff, and reservoir water storage.

#### Water Year 1995-1996

#### **Precipitation and Runoff**

Water year 1995-1996 was the second wet year in a row, although not as wet as the previous year. The year started dry with less than 10 percent of average rainfall during the fall months. These were followed by 3 consecutive wet winter months. March and April were near average for most of California. Only the far south was drier than average. Following the extremely wet 1994-1995 and the extremely dry 1993-1994 water years, this water year was the closest to average in the last 20 years. The May1 outlook was for moderately above-normal runoff, with 110 percent of average snowmelt runoff.

A surprise winter-like storm hit the central and northern Sierra in mid-May and dumped more than three times the average rainfall for the month. Reservoir storage was already high as operators tried to top off storage from spring snowmelt. The rain boosted mountain runoff to flood levels, especially in the central Sierra. The heavy inflow required flood control releases at most major foothill reservoirs. Statewide runoff during May was nearly 150 percent of average. Summer precipitation was near average, with temperatures far above average in Central California in June, July, and August.

Figure 9-1 shows statewide precipitation in water year 1995-1996, by hydrologic region, as a percent of average.

Statewide runoff was 120 percent of average for water year 1995-1996, compared to 180 percent the previous year. After a slow start, runoff was about two-thirds of average for the first 3 months of the water year. Runoff continued slightly below-average in January, and then jumped to more than double the February average due to a warm storm early in the month. From March through June, runoff was above-average, with large flows in May.

Los Banos Reservoir experienced more than 1,800 acre-feet of inflow in 9 days as a result of November storms. A controlled release of 100 cfs at the detention dam was made from November 22 to November27 to decrease storage.

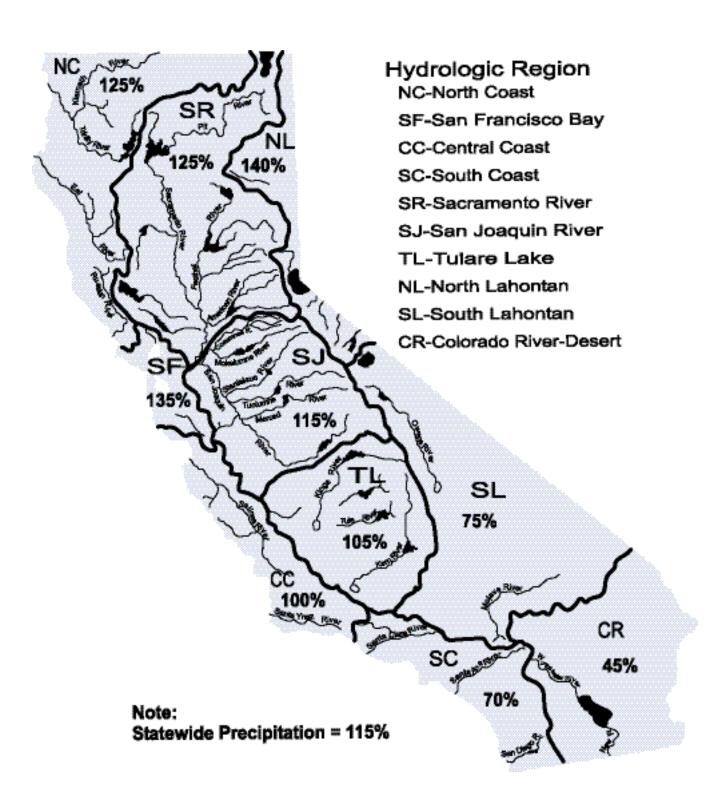
Summer runoff was average. Sacramento River Basin unimpaired runoff totaled 22.2 million acrefeet for the water year—121 percent of average. San Joaquin River system unimpaired runoff (including the Stanislaus, Tuolumne, Merced, and upper San Joaquin rivers) was 7.2 million acre-feet—125 percent of average. Runoff during the snowmelt period from April through July was 125 percent of average for the Sacramento River Basin and 120 percent of average for the San Joaquin River Basin. This was due in part to the unseasonably high May precipitation, as snowpack was below-average for most of the

#### Early 1997 Flood Flows

The remainder of calendar year 1996 had below-average precipitation in October and above-average in November. A series of storms throughout December, several with very high snow lines, provided three-and-a-half times the average precipitation for the month, and resulted in large flood releases throughout the Sacramento system. This led to the record flood flows in early January 1997.

Increased Lake Oroville inflows drove lake storage into flood reservation space for 6 days in mid-December, to nearly 2.9 million acre-feet compared to 2.7 million acre-feet at the same time in 1995. On December31, daily reservoir average inflow peaked at just over 171,000 cfs at Oroville. Daily average releases peaked at 77,000 cfs on the same day. The January1, 1997, inflows and releases at Lake Oroville exceeded all historical values. Feather River releases for the month of December totaled nearly 1.1 million acre-feet.

Figure 9-1
Statewide Precipitation by Hydrologic Region, 1995-1996 Water Year, in Percentage of Average



winter due to the warm storms. April1 snowpack was 95 percent of average, compared with 175 percent in 1995 and 50 percent in 1994.

Lake Oroville released nearly 85,000 acre-feet from May 18 to 25. Another 20,000 acre-feet were released throughout May from Antelope and Frenchman lakes. These releases minimized encroachment and avoided potential flooding to downstream orchards and fields. They also allowed Lake Oroville to top out at elevation 899.5 feet on May 22.

#### Storage

The SWP operates a complex system of 28 dams and reservoirs to collect and store water for future deliveries. Lake Oroville, in Northern California, is the first of two primary SWP conservation facilities. Inflow to Lake Oroville is from the Feather River.

San Luis Reservoir, in the central part of the State, is the second primary SWP conservation facility and derives its inflow from pumping at Gianelli Pumping-Generating Plant. San Luis is off-stream storage with all water in the reservoir being pumped in. The remaining 26 dams and reservoirs regulate the conserved supply into water delivery patterns designed to fit local needs.

Reservoir storage at the end of September was about 120 percent of average compared to 130 percent in 1995. Total storage in major SWP reservoirs was about 4.1 million acre-feet on September30, about 500,000 acre-feet less than the storage at the same time in 1995. September30 storage at Lake Oroville was about 2.7 million acre-feet, about 200,000 acre-feet less than last year. The State's share of San Luis Reservoir storage was about 740,000 acre-feet compared to 1.07 million acre-feet last year. Storage in San Luis increased during September due to the decreasing summer delivery demands. The combined storage in southern reservoirs was 626,000 acre-feet on September30 compared with 669,000 acre-feet last year.

Total storage in major SWP reservoirs was about 4.6 million acre-feet on December 31, compared with 4.2 million acre-feet in 1995. The State's share of San Luis Reservoir storage was about 1.1 million acre-

feet, compared with 0.9 million acre-feet at the same time in 1995. The combined storage in southern reservoirs was 615,000 acre-feet on December 31 compared with 597,000 acre-feet in 1995.

The following information about these reservoirs, including amounts of unimpaired runoff to Lake Oroville and storage levels for SWP conservation and other storage facilities, is based on the 1995-1996 water year.

Lake Oroville. Lake Oroville, the keystone of the SWP, has a maximum capacity of 3,537,580 acrefeet. Runoff from the Feather River is collected and stored in the reservoir for release to the Sacramento-San Joaquin Delta through Oroville Dam, Thermalito Diversion Dam, and Thermalito Afterbay.

Inflow to Lake Oroville for the 1995-1996 water year totaled about 5.7 million acre-feet—127 percent of average. Minimum storage occurred December 29, 1995, at 2,687,877 acre-feet—76 percent capacity. Maximum storage occurred May22, 1996, at 3,529,838 acre-feet—slightly less than 100 percent of capacity. See figures 9-2 and 9-3 for monthly and cumulative inflow into Lake Oroville. Figure 9-4 compares end-of-month storage at Lake Oroville for the 1995 and 1996 calendar years.

San Luis Reservoir. The Department and the U. S. Bureau of Reclamation operate San Luis Reservoir jointly according to operating procedures completed in June 1981. San Luis Reservoir has a normal operating capacity of 2,027,840 acre-feet. The SWP share of capacity is 1,062,183 acre-feet.

At the beginning of the 1995-1996 water year, San Luis Reservoir contained 1,526,420 acre-feet—75 percent of its normal maximum operating capacity. The SWP share was 1,066,634 acre-feet. By March4, San Luis Reservoir reached its maximum storage for 1996 at 2,034,956 acre-feet—slightly more than 100 percent of normal maximum operating capacity. The highest end-of-month SWP share of storage was in October 1995 at 1,118,444 acre-feet (Figure 9-5).

**Lake Del Valle.** Lake Del Valle, situated off the South Bay Aqueduct, primarily stores water for use in Santa Clara and Alameda counties. At the

Figure 9-2 Monthly Inflow to Lake Oroville from Feather River, 1994-96 Water Years

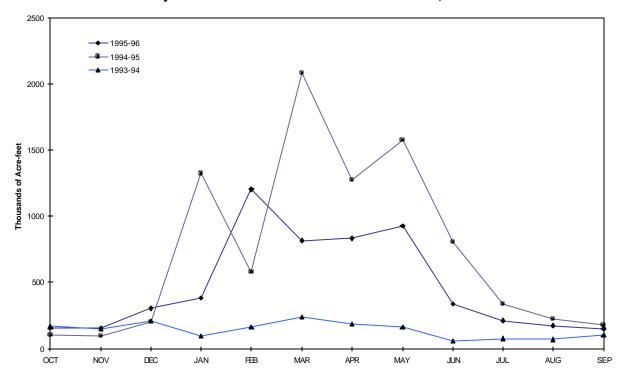


Figure 9-3
Cumulative Inflow into Lake Oroville from Feather River

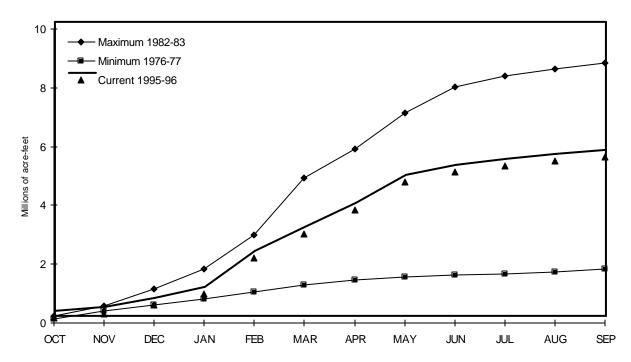


Figure 9-4
End-of-Month Storage in Lake Oroville, 1995 and 1996 Calendar Years

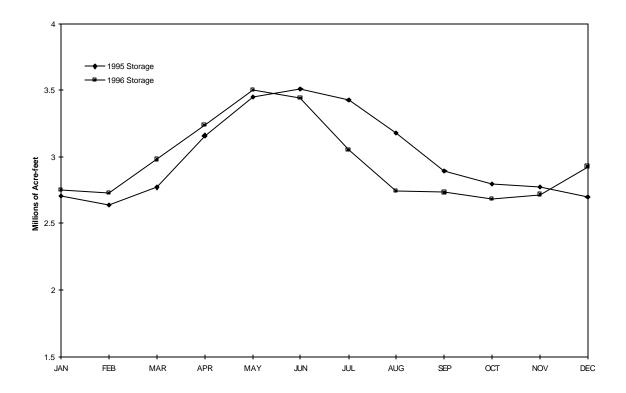
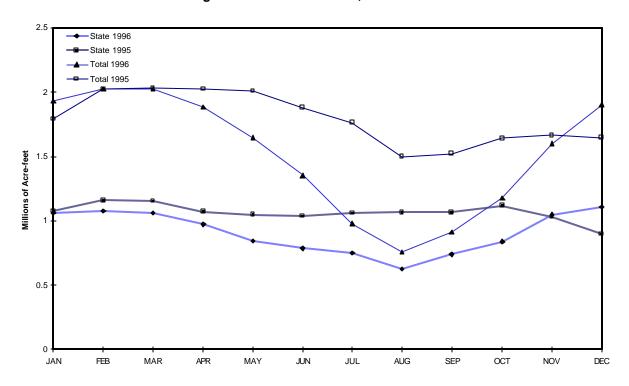


Figure 9-5
End-of-Month Storage in San Luis Reservoir, 1995 and 1996 Calendar Years



beginning of the 1995-1996 water year, Lake Del Valle held 34,451 acre-feet—about 86 percent of normal maximum operating capacity (39,914 acrefeet). Its highest storage occurred February 21, 1996, at 48,296 acre-feet.

By the end of the 1995-1996 water year, storage in Lake Del Valle dropped to 33, 061 acre-feet—82 percent of normal maximum operating capacity. Releases to Arroyo Valle and South Bay Aqueduct from Lake Del Valle totaled 49,237 acre-feet for the 1995-1996 water year.

Southern Reservoirs. During normal operating conditions, the Department maintains its four southern reservoirs—Pyramid, Castaic, and Silverwood lakes and Lake Perris—at or near full operating capacity to ensure uninterrupted deliveries of water to Southern California contractors.

At the beginning of the 1995-1996 water year, these reservoirs held 644,745 acre-feet—92 percent of their combined normal maximum operating capacity of 701,321 acre-feet. At the end of the 1995-1996 water year, they held 608,135 acre-feet—87 percent of combined normal maximum operating capacity.

#### **Diversions from the Delta**

The SWP diverts water from the Sacramento-San Joaquin Delta through Banks and Barker Slough pumping plants for delivery to SWP storage facilities and contractors. In 1996, the SWP diverted 3,243,209 acre-feet at Banks Pumping Plant, including 186,990 acre-feet of CVP water wheeled by the Department. Figure 9-6 shows the amounts of water pumped each month at Banks Pumping Plant; Figure 9-7 shows the monthly amounts of water diverted from the Delta by the SWP and CVP in 1996.

During the week of December12 to 16, the SWRCB approved pumping of CVP water at Banks Pumping Plant to facilitate high exports during a juvenile-salmon migration study being conducted by USFWS. SWP storage in San Luis was already slightly above its allocated share and delivery requests were less than 2,000 cfs, making capability available at Banks Pumping Plant. SWP pumping into San Luis was suspended December10 when storage reached the

desired goal of 1.12 million acre-feet. During the 5 days, 46,324 acre-feet was pumped for the CVP, primarily for the federal share of San Luis Reservoir.

Combined SWP and Central Valley Project exports increased to 3,200 cfs May 16 following a 31-day period of exports limited to about 1,500 cfs to benefit juvenile salmon migrating down the San Joaquin River system. Both SWP and CVP increases were pumped at Banks Pumping Plant during the initial 5 days to comply with a ramping provision in the south Delta temporary barriers' permit from the U.S. Army Corps of Engineers. Combined exports were progressively increased at both Banks and Tracy beginning May 21 to 10,300 cfs (6,000 SWP and 4,300 CVP) on May 25. Exports were maintained at that level through the end of May.

The SWP also diverted 36,458 acre-feet at the Barker Slough Pumping Plant to deliver through the North Bay Aqueduct for use by North Bay Aqueduct water contractors.

From Banks Pumping Plant, water is either delivered to the South Bay area through the South Bay Aqueduct or to the San Joaquin Valley, Central Coastal, and Southern California areas through the California Aqueduct.

In the San Joaquin Valley near Kettleman City, the existing Coastal Branch of the Aqueduct serves agricultural areas west of the California Aqueduct. This branch is now being extended to serve municipal and industrial water users in San Luis Obispo and Santa Barbara counties. The extended Coastal Branch is scheduled to be completed in 1997. In 1996, SWP water delivered to the San Joaquin Valley totaled 2,352,651 acre-feet. Figure 9-8 shows the amount of water delivered each month.

In 1996, water pumped through Edmonston Pumping Plant for delivery to Southern California totaled 836,771 acre-feet. Figure 9-9 shows the amount of water pumped each month.

Information for this chapter was provided by the Division of Flood Management, the Division of Operations and Maintenance, and the State Water Project Analysis Office.

Figure 9-6 Water Pumped at Banks Pumping Plant in 1996, by Month

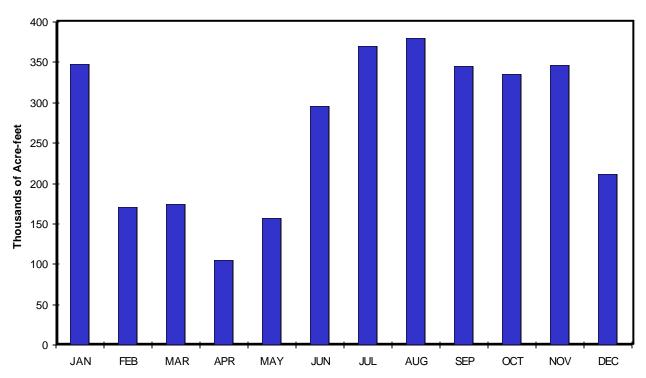


Figure 9-7
Water Diverted from the Sacramento-San Joaquin Delta by State Water Project and Central Valley Project in 1996 by Month

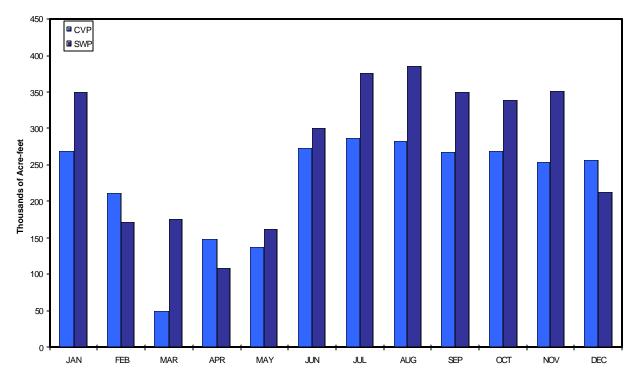


Figure 9-8 SWP Water Conveyed to San Joaquin Valley in 1996, by Month

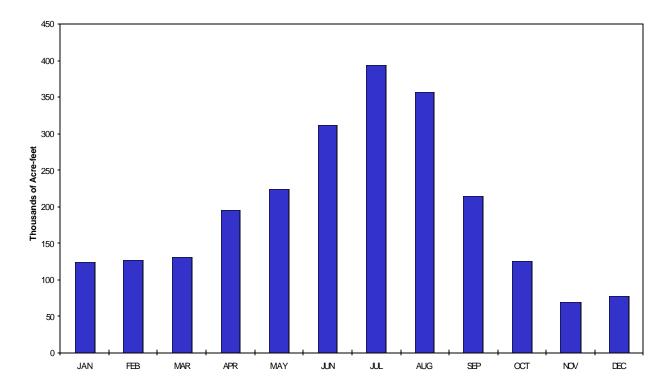
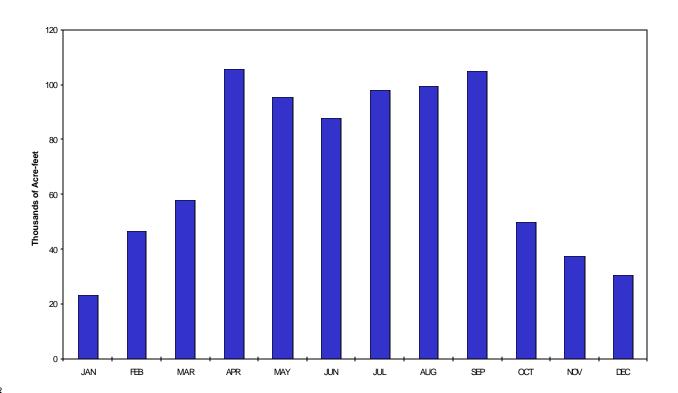


Figure 9-9
Water Pumped at Edmonston Pumping Plant in 1996, by Month



### **Chapter 10**

# **Water Contracts and Deliveries**



Del Valle Lake with Del Valle Dam in the foreground

#### **Significant Events**

The Department helped to alleviate possible flood damage in the Tulare Lake bed and Kern River basin by accepting 52,848 acre-feet of flood waters into the State Water Project system through the Kern River Intertie in January and February 1997. These flood flows were accepted into the Aqueduct under the terms of a 1975 agreement among the Department, Kern County Water Agency, and Buena Vista Water Storage District. The agreement allows flood water from the Kern River, and other water that enters the Kern River downstream of Lake Isabella, such as Friant-Kern Canal water, to be diverted into the California Aqueduct to alleviate flooding in Kern and Tulare counties.

In an agreement among Coachella Valley Water District, Desert Water Agency, Delta Lands Reclamation District No. 770, Tulare Lake Basin Water Storage District, and the Department, 27,130 acre-feet of flood flows from the Kaweah and Tule rivers were accepted into the Aqueduct and delivered to the service area of the Metropolitan Water District of Southern California, for ultimate delivery to DWA and CVWD. An additional 20,366 acre-feet went to satisfy existing

- SWP demands downstream of the Intertie. The remaining 5,352 acre-feet went to KCWA member units under a separate letter agreement.
- The Department executed amendments to the long-term water-supply contracts of KCWA and Mojave Water Agency, providing for the sale of 25,000 acre-feet of KCWA's SWP entitlement to MWA. This was the first sale under the provisions of the Monterey Amendments that allow for the permanent sale of 130,000 acre-feet of agricultural entitlements to contractors for urban use.
- The Department executed an amendment to the long-term water-supply contract between Santa Barbara County Flood Control and Water Conservation District and the Department. The Amendment reduced SBCFCWCD's Table A entitlement by 6,500 acre-feet for a period of 2 years before returning to the previous maximum of 45,486 acre-feet.

he long-term water supply contracts for water service from the State Water Project between the Department and 29 local agencies are basic to the project's construction and operation. In return for the State financing, constructing, and operating facilities needed to provide water service, the agencies contractually agreed to repay all SWP capital and operating costs.

The Department delivers water to SWP contractors according to long-term water supply contracts, which may be amended as needed. The contracts, among other things, specify amounts of water that the Department may deliver to SWP contractors every year. During the 1996-1997 reporting period, the Department executed 11 amendments to these contracts, including 5 amendments resulting from the Monterey Agreement.

The Department also enters into miscellaneous agreements with SWP contractors and other agencies—which may be amended periodically—to convey SWP and non-SWP water through the California

Aqueduct and approve turnout construction along SWP facilities and establish turnout operation and maintenance regulations.

During the 1996-1997 reporting period, the Department executed 14 water conveyance/storage agreements with SWP contractors. During the same reporting period, the Department executed six water conveyance agreements, modified one existing water conveyance agreement, and amended one turnout agreement with non-SWP contractors.

Detailed information about contracts and amendments follows.

#### **Long-Term SWP Water Supply Contracts**

The first water-supply contract was signed with the Metropolitan Water District of Southern California on November 4, 1960. The contract was negotiated by the Department and MWD according to terms of the contracting principles for water service contracts announced by Governor Edmund G. Brown on January 20, 1960.

The MWD contract became the prototype for all water contracts; by the end of 1967, 31 agencies had contracted for water. In addition, a water-supply contract was executed with the city of West Covina in December 1963, but was terminated in August 1965; the city's water entitlement was transferred to MWD through an amendment to the district's long-term contract with the Department. Long-term contracts with Hacienda Water District and Devil's Den Water District were also terminated when those districts transferred their water entitlements, through contract amendments, to Tulare Lake Basin Water Storage District (1981) and Castaic Lake Water Agency (1992), respectively. Today the SWP has long-term water-supply contracts with 29 agencies. Those contracts have been amended repeatedly to incorporate mutually desired modifications.

All water contracts signed in the 1960s included an estimate of the date water would first be delivered and a schedule of the amount of water the agency could expect to be delivered annually (annual entitlement). That amount was designed to increase gradually until the maximum amount of annual entitlement was reached. The total combined annual entitlement for all water contracting agencies was initially 4,230,000 acre-feet, assuming full development of the SWP.

The contracts were initially designed to be valid for 75 years or until all bonds sold as part of the California Water Resources Development Bond Act were repaid, whichever period was longer. As a result of amendments to contracts in the 1990s, the current combined maximum annual entitlement totals 4,172,786 acre-feet, and the contracts are in effect for the longest of the following periods: (1) the project repayment period, which extends to the year 2035; (2) 75 years from the date of the contract; or (3) the period ending with the latest maturity date of any bond used to finance the construction costs of project facilities.

Table 10-1
Amendments to Water Supply Contracts, by Category

Category (a	Description
1. Revision of annual entitlements	Amendments to Table A, "Annual Entitlements," of water supply contracts resulting in changes in amounts of entitlement water
2. Enlargement of East Branch and Extension of Coastal Branch of California Aqueduct	Amendments for allocating costs and benefits of the enlargement or extension of the East Branch and extension of the Coastal Branch of the California Aqueduct
3. Purchase of excess capacity	Amendments to allow contractors to purchase extra water service capacity from the California Aqueduct
4. Provisions to carry over entitlement water [Article12(e)]	Amendments to allow contractors to carry over entitlement water from one year for delivery in the next year, providing certain conditions are met
5. Surplus water provisions	Amendments to allow contractors to take delivery of surplus water; that is, water in excess of that required to meet all demands for entitlement water
6. Unscheduled water provisions	Amendments to allow contractors to take delivery of unscheduled water; that is, water available for a very short period of time when excess water and SWP pumping capacity are available in the Delta
7. Wet-weather provisions	Amendments to allow contractors to take, under certain conditions, delivery of entitlement water in subsequent years if favorable local weather conditions result in adequate local water supplies
8. Monterey Agreement principles	Amendments to implement the principles of the Monterey Agreement

# Amendments to Long-Term SWP Water Supply Contracts

All the original contracts signed by the Department and local agencies have been amended to incorporate mutually desired changes. Most amendments fall under the following eight general categories:

- revision of annual entitlements;
- enlargement of the East Branch and extension of the Coastal Branch of the California Aqueduct;
- purchase of excess capacity;
- provisions to carry over entitlement water;
- surplus water provisions;
- unscheduled water provisions;
- · wet-weather provisions; and
- · Monterey Agreement principles.

Table 10-1 describes the eight categories of amendments while Table 10-2 lists contractors to which those categories apply.

The following long-term contracts were amended between July 1, 1996, and June 30, 1997.

Kern County Water Agency. The Department executed Amendment Number 26, dated January31, 1997, to the long-term water supply contract between KCWA and the Department. The Amendment provided for the sale of 25,000 acre-feet of agricultural entitlement by the Agency on behalf of Berrenda Mesa Water District to Mojave Water Agency and set forth conditions for the sale. The sale is consistent with implementation of the Monterey Amendment, which provides for the permanent transfer of up to 130,000 acre-feet of agricultural entitlement water to urban agencies.

Mojave Water Agency. The Department executed Amendment Number 18, dated January 31, 1997, to the long-term water supply contract between MWA and the Department. The Amendment provided for the purchase of 25,000 acre-feet of agricultural entitlement by the Agency from Kern County Water Agency acting on behalf of Berrenda Mesa Water District and set forth conditions for the purchase. The purchase is consistent with implementation of the Monterey Amendment, which provides for the permanent transfer of up to 130,000 acre-feet of agricultural entitlement water to urban agencies.

Table 10-2
Amendments to Water Supply Contracts,
June 30, 1997, by Category and
Contracting Agency

Contracting		St	ate	Wat		•		
				nent				
Contracting Agency	1	2	3	4	5	6	7	8
Upper Feather River Area City of Yuba City County of Butte Plumas County Flood Control and Water Conservation District	:				++	(b		•
North Bay Area Napa County Flood Control and Water Conservation District Solano County Water Agency	:		•	:	+	+		:
South Bay Area Alameda County Flood Control and Water Conservation District-Zone 7 Alameda County Water District Santa Clara Valley Water District					+++	++	+++	•
San Joaquin Valley Area County of Kings Dudley Ridge Water District Empire West Side Irrigation				:	+	+	+	:
District Kern County Water Agency Oak Flat Water District Tulare Lake Basin Water Storage District	:				+++	+++	+	:
Central Coastal Area San Luis Obispo County Flood Control and Water Conservation District Santa Barbara County Flood Control and Water Conservation District	•	•			+			
Southern California Area Antelope Valley-East Kern Water Agency Castaic Lake Water Agency Coachella Valley Water District Crestline-Lake Arrowhead Water Agency Desert Water Agency Littlerock Creek Irrigation District Metropolitan Water District of Southern California Mojave Water Agency Palmdale Water District San Bernardino Valley Municipal Water District San Gabriel Valley Municipal Water District San Gorgonio Pass Water Agency Ventura County Flood Control District a) Categories correspond to those lis	·		·	• • • • • • • • • • • • • • • • • • • •	+++ +++ +++ + ++ . 1.	+		• • • • • • • • • • • • • • • • • • • •
"Amendments to Water Supply Cob) + indicates amendment category  Amendments.	ontra	cts,	by (	Cate	gor	y." ·y		

Santa Barbara County Flood Control and Water Conservation District. The Department executed Amendment Number 17, dated April15, 1997, to the long-term water supply contract between SBCFCWCD and the Department. The Amendment reduced their Table A entitlement by 6,500 acre-feet for a period of 2 years before returning to the previous maximum of 45,486 acre-feet.

### **Amendments Concerning Revisions of Annual Entitlement**

In past years, the Department increased annual water entitlements for Oak Flat Water District, Dudley Ridge Water District, and Kern County Water Agency, pursuant to Article 21(g)(3) of their long-term water supply contracts related to deliveries of surplus water. During the 1996-97 reporting period, those contractors elected to reduce their entitlements for specific years, through long-term water supply contract provisions, to compensate for their prior entitlement increases. The entitlement reductions were made by amending their long-term contracts with the Department as follows.

**Dudley Ridge Water District.** Under Amendment 23, dated September23, 1996, DRWD's annual entitlements were decreased for 1990 and 1991. The 1990 annual entitlement was lowered by half, from 57,700 acre-feet to 28,850 acre-feet. The 1991 annual entitlement was reduced by 4,289 acre-feet, from 57,700 acre-feet to 53,411 acre-feet. The sum of the reduced amounts is equal to the sum of DRWD's annual entitlement increases in 1974, 1975, 1976, and 1979.

Kern County Water Agency. Under Amendment 25, dated September23, 1996, KCWA's 1986 annual entitlement was decreased by 34,554 acre-feet, from 968,200 acre-feet to 933,646 acre-feet. The reduced amount is equivalent to the sum of its annual entitlement increases in 1975 and 1976.

Oak Flat Water District. Under Amendment 20, dated September 23, 1996, OFWD's 1983 annual entitlement was decreased by 830 acre-feet, from 4,600 acre-feet to 3,770 acre-feet. The reduced amount is equivalent to the sum of its annual entitlement increases in 1974, 1975, and 1976.

#### **Monterey Amendments**

In December 1996, the Department executed Monterey Amendments with the County of Butte, Castaic Lake Water Agency, Coachella Valley Water District, and the County of Kings. In March 1997, the Department executed a Monterey Amendment with San Bernardino Valley Municipal Water District. The Department had previously executed Monterey Amendments with 20 other long-term water supply contractors including Solano County Water Agency, Alameda County Flood Control and Water Conservation District-Zone 7, Alameda County Water District, Santa Clara Valley Water District, DRWD, KCWA, TLBWSD, SBCFCWCD, Antelope Valley-East Kern Water Agency, Crestline-Lake Arrowhead Water Agency, DWA, MWA, MWD, Napa County Flood Control and Water Conservation District, OFWD, San Luis Obispo County Flood Control and Water Conservation District, Littlerock Creek Irrigation District, Palmdale Water District, San Gabriel Valley Municipal Water District, and San Gorgonio Pass Water Agency. Full execution of the provisions of the Monterey Amendments is pending resolution of litigation associated with the Amendments. For a full discussion of this issue see Chapter 8.

The Monterey Amendments increase the reliability of existing water supplies; provide stronger financial management for the SWP; and increase water management flexibility, providing more tools to local water agencies to maximize existing facilities. Changes to SWP operations incorporated in the Monterey Amendments include changes in determination of future allocations, transfer of entitlement and land, financial restructuring, and increased operational flexibility.

## **Miscellaneous Agreements with Long-Term SWP Contractors**

During 1996 and through June 30, 1997, the Department entered into the following agreements.

#### **Water Conveyance/Storage Agreements**

Agreements were executed with long-term contractors as listed below.

**Alameda County Water District.** ACWD and ACFCWCD-Zone 7 have water rights to divert up to

60,000 acre-feet per year of local flow from Arroyo Del Valle, the stream that flows into Lake Del Valle. Since the previous agreement for the storage of local flows in Lake Del Valle expired, a new agreement was executed March26, 1997, between the Department and the districts. The agreement, effective through December 31, 2012, defines the terms and conditions under which the Department will store the districts' local flow in Lake Del Valle.

Alameda County Water District. The agreement, dated October28, 1996, among ACWD, KCWA, and the Department, provided for the delivery of a portion of ACWD's 1996 entitlement water and other water supplies, to be stored in, and later recovered from, groundwater basins within the agency, in accordance with the Alameda and Semitropic Water Storage District Banking Program Agreement. The banking program agreement authorized the delivery of up to 7,500 acre-feet of ACWD's 1996 entitlement to storage. This was in accordance with the provisions of the Monterey Agreement that encourage operational flexibility for the SWP, such as groundwater storage of SWP water outside a contractor's service area for later use within the service area.

Dudley Ridge Water District. A letter agreement signed November 19, 1996, among DRWD, KCWA, and the Department, approved the transfer of up to 5,000 acre-feet of DRWD 1996 SWP interruptible water and up to 1,000 acre-feet of DRWD 1996 SWP entitlement water to KCWA for delivery to the Kern Water Bank and the return of the same amount of water. The transfer was part of an exchange with KCWA that allowed three landowners in DRWD to receive a like amount of water from KCWA in future years when they could utilize the water more beneficially.

Dudley Ridge Water District. A letter agreement signed September 10, 1996, among DRWD, Tulare Lake Basin Water Storage District, and the Department, approved the delivery of up to 3,500 acre-feet of DRWD 1996 SWP entitlement water to TLBWSD in exchange for a like amount of water delivered for storage in the Kern Water Bank. Fresno Water District and Last Chance Water Ditch Company were also involved in a series of exchanges that facilitated delivery to each entity, thereby saving transportation costs.

Kern County Water Agency. A letter agreement signed July5, 1996, between the Department and KCWA, approved the transfer of up to 24,000 acrefeet of the KCWA 1996 SWP entitlement water to Westlands Water District. The delivery facilitated an exchange between the agency and WWD in which a like amount of USBR Section 215 water, belonging to a member unit of the agency and banked in 1995, was sold to WWD. In lieu of the agency extracting the Section 215 water in 1996 to sell to WWD, and simultaneously recharging it with 1996 SWP water, the agreement allowed for delivery of SWP water directly to WWD from the California Aqueduct and allowed an equal amount of banked Section 215 water to be reclassified as agency SWP water, thereby saving extraction and transportation costs.

Kern County Water Agency. A letter agreement among KCWA, TLBWSD, and the Department, signed July23, 1996, provided for the transfer of up to 1,500 acre-feet of KCWA 1996 SWP entitlement water to TLBWSD. Lost Hills Water District, a member unit of KCWA, transferred 1,500 acre-feet to Westlake Farms, located in the TLBWSD service area. The transferred water was used to create wetland habitat for shore birds as required under a mitigation agreement between the regional water quality control board and LHWD for operation of the LHWD evaporation basin.

Kern County Water Agency. A letter agreement signed June24, 1997, between the Department and KCWA, approved the transfer of up to 47,520 acrefeet of KCWA 1997 SWP entitlement water to WWD. The agreement facilitated a water transfer from landholders within four member units of the Agency—LHWD, BMWD, Belridge Water Storage District, and Wheeler Ridge-Maricopa Water Storage District—to lands they farmed in WWD.

Kern County Water Agency. A letter agreement signed April11, 1997, between the Department and KCWA, approved the exchange of up to 20,000 acrefeet of KCWA 1997 SWP entitlement water for a like amount of WWD's CVP water stored in San Luis Reservoir. This exchange involved reclassification of some entitlement water delivered to KCWA during January and February 1997 as WWD exchange water.

Kern County Water Agency. A letter agreement dated June 10, 1997, and signed July 30, 1997, between the Department and KCWA allowed the conveyance of up to 6,000 acre-feet of local water through the Kern River Intertie for delivery to KCWA turnouts. Operations of the Kern River Intertie in January and February of 1997 to alleviate flooding in Kern and Tulare counties disrupted some deliveries within KCWA's Kern River distribution system. This letter agreement restored some of these deliveries. A total of 5,352 acre-feet was actually delivered.

San Luis Obispo County Flood Control and Water Conservation District. The letter agreement, signed September 26, 1996, among SLOCFCWCD, TLBWSD, County of Kings, and the Department, approved the transfer of up to 100 acre-feet of the SLOCFCWCD 1996 SWP entitlement water to TLBWSD. The letter agreement facilitated a water transfer from Union Oil Company of California, a landowner within Avila Beach County Water District (a subcontractor of SLOCFCWCD) to lands they own in Kings County. The transfer facilitated an agreement between Avila Beach and Unocal.

San Luis Obispo County Flood Control and Water Conservation District. The letter agreement, signed May22, 1997, among SLOCFCWCD, TLBWSD, County of Kings, and the Department, approved the transfer of up to 100 acre-feet of SLOCFCWCD 1997 SWP entitlement water to TLBWSD. The letter agreement, similar to the one mentioned above involving SLOCFCWCD 1996 SWP entitlement water, extended the same terms and conditions for another year.

Santa Clara Valley Water District. The agreement, dated September 19, 1996, among SCVWD, KCWA, and the Department, provided for the delivery of a portion of SCVWD's 1996 entitlement water and other water supplies, to be stored in and later recovered from groundwater basins within the Agency, in accordance with the Santa Clara and Semitropic Water Storage District Banking Program Agreement. The banking program agreement authorized the delivery of up to 45,000 acre-feet of SCVWD 1996 entitlement water to storage. This was in accordance with the provisions of the Monterey Agreement that

encourage operational flexibility for the SWP, such as groundwater storage of SWP water outside a contractor's service area for later use within the service area.

#### San Bernardino Valley Municipal Water District.

The Cooperative Interchange Agreement, dated January7, 1997, among SBVMWD, MWD, and the Department, set forth the terms for San Bernardino to deliver surface water of up to 5,000 acre-feet, when available, from the Santa Ana River and/or Mill Creek into the Foothill Pipeline for delivery to MWD through the Devil Canyon Afterbay during the scheduled outage of the San Bernardino tunnel in early 1997. The agreement also required MWD to return a like amount of its SWP entitlement water to SBVMWD in 1997.

Tulare Lake Basin Water Storage District. The agreement, dated April18, 1997, among CVWD, DWA, Delta Lands Reclamation District No. 770, TLBWSD, MWD, and the Department, set forth terms for the transfer of flood flows from the Kaweah and Tule rivers to the service area of MWD, which in turn exchanged a like amount of its Colorado River aqueduct water to DWA and CVWA. A total of 27,130 acre-feet of flood waters were conveyed as non-SWP water deliveries to reduce the amount of flood-water damage within the Tulare Lake bed.

Tulare Lake Basin Water Storage District. A letter agreement, signed May19, 1997, between the Department and TLBWSD, approved the transfer of up to 4,000 acre-feet of the TLBWSD SWP entitlement water to WWD. The agreement facilitated the water transfer from Hanson Ranches, a landowner in the TLBWSD, to lands it farms in WWD under the name of Vista Verde Farms, Incorporated.

#### **Turnout Agreements**

Mojave Water Agency. On October 6, 1995, MWA and the Department executed an agreement to allow construction, operation, and maintenance of the Mojave River Turnout, located at milepost 389.2 of the California Aqueduct. Phase I construction began in November 1995; Phase II construction began in October 1996 and is ongoing. Once completed, the siphon-intake turnout will deliver up to a maximum

of 90 cfs. The 72-mile Mojave River pipeline will then convey the SWP water to several subbasins of the Mojave River basin.

#### **Agreements Related to the Monterey Agreement**

Turnback Water Pool Program. Under Article 56(d) of the Monterey Agreement, the second year of the Turnback Water Pool Program was initiated through Notice to the State Water Project Contractors No. 97-3, dated February 5, 1997. All SWP contractors who signed Monterey Amendments were permitted to participate in the program. The exception was the City of Yuba City, which was expected to sign the Monterey Amendment in 1997. The program allowed SWP contractors to offer a portion of their approved 1997 entitlement for sale in a turnback pool for use outside their service area. Other contractors interested in purchasing this water could then request a portion or all of it. Based on supply and demand, the turnback water was allocated among the selling and purchasing contractors.

Transactions for pool A occurred in January and February 1997; transactions for pool B occurred in March 1997. Turnback water sold for 50 percent of the Delta Water Rate per acre-foot through pool A and for 25 percent of the Delta Water Rate per acrefoot through pool B. All money collected through the turnback pool program was paid to the selling contractors. The 1997 Turnback Water Pool Program closed April 1, 1997.

The following contractors participated in pool A of the turnback water pool program:

- SLOCFCWCD sold 17 acre-feet;
- NCFCWCD sold 8 acre-feet;
- ACFCWCD-Zone 7 sold 119 acre-feet;
- County of Kings sold 24 acre-feet;
- TLBWSD sold 532 acre-feet;
- SBCFCWCD sold 131 acre-feet;
- AV-EKWA sold 455 acre-feet;
- · CLWA sold 119 acre-feet;
- SGVMWD sold 76 acre-feet;
- · City of Yuba City sold 48 acre-feet; and
- DRWD purchased 1,529 acre-feet.

The following contractors participated in pool B of the turnback water pool program:

- SLOCFCWCD sold 784 acre-feet;
- · City of Yuba City sold 1,954 acre-feet;
- NCFCWCD sold 314 acre-feet;
- ACFCWCD-Zone 7 sold 3,883 acre-feet;
- County of Kings sold 965 acre-feet;
- TLBWSD sold 21,494 acre-feet;
- SBCFCWCD sold 5.313 acre-feet:
- AV-EKWA sold 18,395 acre-feet;
- CLWA sold 4,825 acre-feet;
- SGVMWD sold 3,088 acre-feet;
- DRWD purchased 11,015 acre-feet;
- DWA purchased 15,000 acre-feet; and
- CVWD purchased 35,000 acre-feet.

The Department purchased the remaining 190,402 acre-feet of turnback water.

#### **Other Administrative Actions**

**Kern River Intertie.** In January and February 1997, the Department accepted 52,848 acre-feet of flood water flows into the California Aqueduct from the Kern River Intertie. Under a 1975 agreement among the Department, KCWA, and Buena Vista Water Storage District, flood water from the Kern River and other water that enters the Kern River downstream of Lake Isabella, such as Friant-Kern Canal water, can be diverted into the California Aqueduct to alleviate flooding in Kern and Tulare counties. A total of 20,366 acre-feet of the flood water went to satisfy existing SWP demands downstream of the Intertie in accordance with the 1975 agreement. Another 27,130 acre-feet was delivered to Desert and Coachella (see Tulare Lake Basin Water Storage District under Miscellaneous Agreements with Long-Term SWP Contractors, above). The remaining 5,352 acre-feet went to KCWA member units under a separate letter agreement.

The Metropolitan Water District of Southern California. By letter dated June 11, 1996, the Department approved a boundary change involving the annexation of Port Hueneme Water Agency, formerly in Ventura Country Flood Control District's service area, to MWD, and a change in point of delivery of VCFCD entitlement water to MWD's turnout. The approvals facilitated an arrangement

whereby 1,850 acre-feet of VCFCD SWP entitlement water was leased to Port Hueneme and in turn subleased to MWD.

San Gabriel Valley Municipal Water District. By letter dated August1, 1996, the Department approved a boundary change for the SGVMWD in accordance with Article 15 of their long-term water supply contract with the Department. Approximately 216 acres were annexed to the City of Azusa and SGVMWD's service area and were detached from the Three Valleys Municipal Water District, a member agency of MWD.

**Dudley Ridge Water District.** By letter dated May12, 1997, the Department approved a boundary change for DRWD in accordance with Article 15 of their long-term water supply contract with the Department. Approximately 4,200 acres were annexed into the service area of DRWD from the County of Kings service area.

## Miscellaneous Agreements with Other Agencies

In addition to negotiating agreements with SWP contractors to provide for specified water deliveries, the Department also entered into several agreements with other agencies for water conveyance, or exchange, during July1, 1996, through June30, 1997.

#### Water Conveyance Agreements-CVP Water

The Department regularly enters into agreements to convey CVP water, such as agreements with contractors receiving water from the U.S. Bureau of Reclamation through the Cross Valley Canal, a water conveyance facility that connects with the California Aqueduct near Tupman in Kern County. Other agencies or corporations receive CVP water through agreements between the Department and USBR, including the U.S. Department of Veterans Affairs, U.S. Fish and Wildlife Service, and Musco Olive Products, Inc. Occasionally, the Department also enters into agreements with USBR to convey CVP water through SWP facilities from the Delta to O'Neill Forebay. These agreements allow USBR to make up water exports from Tracy Pumping Plant associated with improving conditions for fish in the

Delta, or for replacing pumping capacity lost during maintenance of the Tracy Pumping Plant.

Cross Valley Canal. The Cross Valley Canal is used by eight water contractors to obtain water from the California Aqueduct either by exchange with other agencies or, in the case of two contractors, by direct delivery. The eight water contractors are County of Fresno, County of Tulare, Hill's Valley Irrigation District, Kern-Tulare Water District, Lower Tule River Irrigation District, Pixley Irrigation District, Rag Gulch Water District, and Tri-Valley Water District.

On June 21, 1996, LTRID and PID requested that the Department change the point of delivery for their CVP water from the CVC turnout to turnouts in reaches 4 through 7 of the California Aqueduct for delivery to WWD. As a result, the Department and the two districts executed agreements July 12, 1996, for Department conveyance of up to 12,500 acre-feet of CVP water for each district. Later, at the request of the districts to increase water conveyance, the Department amended both letter agreements twice. The first amendments, dated October 16, 1996, increased water conveyance to a maximum of 13,750 acre-feet for each District; the second amendments, dated December 31, 1996, increased conveyance to a maximum of 18,750 acre-feet.

Musco Olive Products, Inc. An annual agreement dated December 26, 1996, between the Department and USBR, provides for the conveyance of up to 300 acre-feet of CVP water to Reach 2A of the California Aqueduct for use by Musco Olive Products, Inc. This water is to be conveyed from January 1, 1997, through December 31, 1997.

U.S. Department of Veterans Affairs. An annual agreement, dated December 26, 1996, between the Department and USBR, approved the conveyance of up to 450 acre-feet of CVP water to Reach 2B of the California Aqueduct for use by the U.S. Department of Veterans Affairs at the San Joaquin Valley National Cemetery. The water is to be conveyed from January 1, 1997, through December 31, 1997.

U.S. Fish and Wildlife Service Cooperative
Agreement. USBR initiated a cooperative agreement with the Department to deliver CVP water to the

Kern National Wildlife Refuge for USFWS. Under the terms of this cooperative agreement, dated September9, 1994, up to 26,530 acre-feet of CVP water would be delivered from Check 21 to the Buena Vista Water Storage District Turnout BV-1B, on Reach 10A of the California Aqueduct, from October 1, 1993, through April10, 1995. Since the cooperative agreement was signed, five modifications to the agreement have been executed. Under Modification No. 001, dated October 31, 1994, additional funding was provided. Under Modification No. 002, dated April14, 1995, the following changes were made:

- the term of the agreement was extended through April 10, 1998;
- Storage District Turnout BV-2B, on Reach 12E of the California Aqueduct, was added as a second point of delivery;
- · additional funds were provided; and
- the quantity of water to be delivered was increased to 82,837 acre-feet.

Modification No. 003, dated May 10, 1995, defined the water delivery rates for calendar year 1995 and specified that those rates will be adjusted annually. Modification No. 004, dated February 15, 1996, incorporated water delivery rates for calendar year 1996. Modification No. 005, dated December 10, 1996, incorporated water delivery rates for calendar year 1997.

U.S. Bureau of Reclamation. An agreement, dated December 13, 1996, between the Department and USBR, confirmed the terms and conditions under which the Department conveyed 129,756 acre-feet of CVP water from the Delta to O'Neill Forebay through SWP facilities during October and November 1996. USBR requested the conveyance to make up for reduced water exports conducted April 15 through May 24, 1996, to improve fish protection in the Bay-Delta Estuary.

U.S. Bureau of Reclamation. A letter agreement, dated January 10, 1997, documented the terms and conditions under which the Department conveyed 46,324 acre-feet of CVP water to O'Neill Forebay from December 12 through 16, 1996. The water conveyance allowed the U.S. Fish and Wildlife Service to continue its salmon smolt studies on the effects of

project exports at Banks and Tracy pumping plants on fish migration and survival under various export/inflow ratios. The Department pumped this water at Banks Pumping Plant when the Department's share of storage in San Luis Reservoir was full, and the Department had available capacity at Banks and reaches 1 through 2B of the California Aqueduct.

#### **Other Agreements-Turnouts**

San Francisco. The city and county of San Francisco has two turnouts for unforeseen emergency water needs on the South Bay Aqueduct. The San Antonio turnout, constructed in 1990, has a 75-cfs capacity and the Sunol temporary turnout, constructed in 1991, has a 35 cfs capacity. The agreement for maintenance and operation of the San Antonio turnout was signed June 8, 1995, and terminates April19, 1999. The Sunol temporary turnout agreement for construction, operation, and maintenance was signed August 22, 1991, and a fifth amendment was executed on December 16, 1996, which extends the agreement to August 1, 1997. A long-term Sunol agreement similar to the San Antonio agreement is being negotiated between the Department and San Francisco.

#### Amendments to Miscellaneous Agreements with Other Agencies

North Delta Water Agency. On January 1, 1997, the Department executed an amendment to the January 28, 1981, agreement between the Department and NDWA. In the amendment, NDWA approves the Department's land acquisition on Sherman Island and agrees that such acquisition is in lieu of building the overland water transportation facility as specified in the 1981 contract. The amendment also shifts the contract water quality monitoring station from Emmaton to Threemile Slough and reduces annual payments to the Department based on the percentage of land owned by the Department within NDWA's jurisdiction.

#### Water Deliveries

The SWP delivers water for a variety of beneficial uses. In addition to delivering entitlement water to long-term water supply contractors, the SWP:

- conveys water to and stores water for other public agencies through special contracts and agreements;
- provides water for wildlife and recreational uses;
   and
- stores, releases, and delivers local runoff water from SWP facilities to agencies that hold local water rights.

In 1996, 3,733,853 acre-feet of water were conveyed to 25 long-term contractors and 17 other agencies. That amount includes:

- 2,543,472 acre-feet of entitlement water<sup>1</sup>, with 2,203,516 acre-feet delivered to long-term contractors, 165,047 acre-feet transferred to WWD, and 174,909 acre-feet of purchase pool water;
- entitlement-related water, which included 3,907 acre-feet of recreation/fish and wildlife water, 1,256 acre-feet of flexible storage withdrawal water delivered to CLWA from Castaic Lake as permitted in the Monterey Amendment; and
- 1,185,218 acre-feet of nonentitlement water delivered to satisfy agreements made with SWP contractors and other agencies, including USBR.

Figure 10-1 shows amounts of water delivered to various locations during 1996.

Specific information about water deliveries made to long-term contractors and other agencies during 1996 and historical deliveries from 1962 through 1996 is presented in the following three sections, each with a corresponding table:

- water delivered and future credits granted to long-term contractors in 1996 (Table 10-3);
- water delivered in 1996, by month (Table 10-4); and
- annual water entitlements and water conveyed, by water type, from 1962 through 1996 (Table 10-5).

<sup>&</sup>lt;sup>1</sup> Entitlement water is defined as the amount of water long-term contractors may request each year as part of Article 12(a), "Procedure for Determining Water Delivery Schedule," of their water supply contract.

 Antelope Lake Lake Oroville Lake Davis 7,109 AF 360 AF Thermalito Afterbay 890,678 AF Frenchman Lake 11,404 AF Lower Feather River 26,863 AF Sacramento North Bay Aqueduct 34,892 AF **Banks Pumping Plant** South Bay Aqueduct 157,632 AF 181,262 AF San Luis Reservoir 194,054 AF Kettlemen City Coastal Branch 114,716 AF 1,323,435 AF Bakersfield 78,991 AF Edmonston Pumping Plant Pyramid Lake Silverwood Lake West Branch 298,267 AF Castolc Lake 418,150 AF Lake Perris Los Angelos Note: Total water delivered, 3,733,767 acre-feet

Figure 10-1
Water Delivered in Calendar Year 1996 and Delivery Locations

**Table 10-3** Water Delivered in 1996 and Carryover Credits Granted to Long-term Contractors through 1996, by Service Area (Acre-feet)

	Water Deliveries in 1996  Entitlement Water Deliveries													
_														
	1996 Entitlement without Transfers, Exchanges, and Storage (1)	1996 Entitlement Delivered Through Transfers and Exchanges (2)		Total 1996 Entitlement Delivered (4)	1996 Interruptible Water (5)	1995 Carryover Entitlement Delivered during 1996 (6)	Make-up Water per Article 12(d) (7)	Make-up Water per Article 14(b) (8)	Purchase Pool A (9)	Purchase Pool B (10)	Total Entitlement (11)	Other Water Deliveries (12) (a	Total Deliveries (13)	
Upper Feather River Area														
County of Butte	257			257							257		257	
Plumas County Flood Control and Water Conservation District City of Yuba City	360 820			360 820							360 820		360 820	
North Bay Area Napa County Flood Control and Water Conservation District Solano County Water Agency	4,893 29,144			4,893 29,144		855					4,893 29,999		4,893 29,999	
South Bay Area Alameda County Flood Control and Water Conservation District-Zone 7 Alameda County Water District Santa Clara Valley Water District	18,903 13,462 43,829		6,200 45,000	18,903 19,662 88,829		1,021					18,903 19,662 89,850	19,346 10,388	38,249 30,050 89,850	
San Joaquin Valley Area Castaic Lake Water Agency County of Kings Dudley Ridge Water District Empire West Side Irrigation District Kern County Water Agency Oak Flat Water District	14,052 4,000 48,896 1,371 954,513 4,904	1,455 (b 161,047 (c		14,052 4,000 50,351 1,371 1,115,560 4,904	4,457 15,653	497 50,895 (d					14,052 4,000 54,808 1,868 1,182,108 4,904		14,052 4,000 54,808 1,868 1,182,108 4,904	
Tulare Lake Basin Water Storage District	114,500	9,195 (f		123,695	8,537	38,570			71,268		242,070		242,070	
Central Coastal Area San Luis Obispo County Flood Control and Water Conservation District Santa Barbara County Flood Control and Water Conservation District	0			0							0		0	
Southern California Antelope Valley-East Kern Water Agency Castaic Lake Water Agency Coachella Valley Water District Crestline-Lake Arrowhead Water Agency Desert Water Agency Littlerock Creek Irrigation District Metropolitan Water District of Southern California Mojave Water Agency Palmdale Water District San Bernardino Valley Municipal Water District San Gabriel Valley Municipal Water District San Gorgonio Pass Water Agency Ventura County Flood Control District	56,356 18,448 23,100 485 38,100 494 468,427 6,111 11,434 6,064 15,989 0	1,316 (g	84,832	57,672 18,448 23,100 485 38,100 494 553,259 6,111 11,434 6,064 15,989 0		40,121				39,119 64,522	57,672 18,448 62,219 485 102,622 494 593,380 6,111 11,434 6,064 15,989 0	1,256 (I 724	57,672 19,704 62,219 1,209 102,622 494 593,380 6,111 11,434 6,064 15,989 0	
Total	1,898,912	173,013	136,032	2,207,957	28,647	131,959			71,268	103,641	2,543,472	31,714	2,575,186	

a) Includes local, general wheeling, and operational flood release water.
 b) Transferred from KCWA.
 c) Includes 161,047 acre-feet transferred to Westlands Water District.

d) Does not include 1,455 acre-feet of 1995 carryover water transferred to DRWD from KCWA.
e) Includes 4,000 acre-feet transferred to Westlands Water District.
f) Includes 1,500, 3,595, and 100 acre-feet transferred from KCWA, DRWD, and SLOCFCWCD, respectively.

g) Transferred from Mojave Water Agency.

h) Flexible storage withdrawal water.

(Acre-feet)

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					`									Page 1 of
						Month							1996 - Total	1996 Contract
Contracting Agency and Type of Service	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Deliveries	Entitlemen
Feather River Area														
City of Yuba City														
Entitlement water	0	0	0	0	0	0	368	452	0	0	0	0	820	9,600
County of Butte														
Entitlement water	11	22	0	3	26	0	0	36	4	11	34	110	257	1,200
Plumas County Flood Control and Water Conservation District														
Entitlement water	1	1	2	3	30	65	92	82	53	29	2	0	360	1,300
Last Chance Creek Water District														
Regulated delivery of local supply	0	0	0	0	0	2,499	3,457	4,048	952	448	0	0	11,404	
Thermalito Irrigation District														
Regulated delivery of local supply Oroville-Wyandotte Irrigation District	100	93	94	131	231	349	441	420	316	219	111	108	2,613	
Regulated delivery of local supply	152	102	301	285	745	1,030	1,100	1,120	1,130	797	188	159	7,109	
Western Canal Water District														
Regulated delivery of local supply	1,385	0	0	2,351	36,821	46,982	59,556	46,687	9,470	27,783	18,827	5,159	255,021	
Joint Water Districts Board														
Regulated delivery of local supply Oswald Water District	18,490	0	0	4,400	95,810	108,525	123,086	111,483	48,473	41,640	43,130	37,750	632,787	
Regulated delivery of local supply	0	0	0	0	199	343	288	128	105	0	0	0	1,063	
Tudor Mutual Water Company														
Regulated delivery of local supply	0	0	0	0	162	1,107	910	542	536	23	0	0	3,280	
Garden Highway Water Company														
Regulated delivery of local supply Plumas Mutual Water Company	0	0	0	257	2,996	2,564	3,597	3,212	1,079	0	0	0	13,705	
Regulated delivery of local supply	0	0	0	0	1,002	1,955	2,218	1,373	1,212	255	0	0	8,015	
SWP	12	23	2	6	56	65	460	570	57	40	36	110	1,437	
Non-SWP	20,127	195	395	7,424	137,966	165,354	194,653	169,013	63,273	71,165	62,256	43,176	934,997	
Area Total	20,139	218	397	7,430	138,022	165,419	195,113	169,583	63,330	71,205	62,292	43,286	936,434	12,100
North Bay Area														
Napa County Flood Control and Water Conservation District														
Entitlement water	100	99	117	169	163	220	333	365	1,159	483	865	820	4,893	10,425
Solano County Water Agency	100	99	117	109	103	220	333	303	1,155	403	803	020	4,093	10,423
Entitlement water	0	39	652	1,013	2,272	2,519	2,580	1,972	923	467	185	142	12,764	37,800
Carryover entitlement water	704	151	0	0	0	0	0	0	0	0	0	0	855	0.,000
Entitlement water to Benicia	0	42	880	1046	1353	1254	1,173	1,183	1,151	1161	672	491	10,406	
Entitlement water to Vallejo	0	125	190	791	1017	978	972	879	673	317	32	0	5,974	
Agency Total	704	357	1,722	2,850	4,642	4,751	4,725	4,034	2,747	1,945	889	633	29,999	
SWP	804	456	1,839	3,019	4,805	4,971	5,058	4,399	3,906	2,428	1,754	1,453	34,892	
Area Total	804	456	1,839	3,019	4,805	4,971	5,058	4,399	3,906	2,428	1,754	1,453	34,892	48,225
South Bay Area														
Alameda County Flood Control and Water														
Conservation District, Zone 7														
Entitlement water	46	2	62	339	1,753	2,055	3,292	4,958	1,250	3,295	1,829	22	18,903	44,000
General wheeling	0	0	0	0	0	0	0	0	667	0	0	0	667	
Local water	989	1,016	1,733	2,309	2,159	2,636	1,565	0	2,460	600	711	1,834	18,012	
Agency Total	1,035	1,018	1,795	2,648	3,912	4,691	4,857	4,958	4,377	3,895	2,540	1,856	37,582	

(Acre-feet)

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						Мо	onth						1996 Total	1996 Contract
Contracting Agency and Type of Service	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Deliveries	Entitlement
Alameda County Water District														
Entitlement water	0	0	0	2,012	2,418	1,786	1,680	2,222	2,170	1,174	0	0	13,462	42,000
Stored entitlement water	0	0	0	0	0	0	0	0	6,200	0	0	0	6,200	
Local water	1,922	1,284	1,501	0	0	600	600	600	600	600	756	1,925	10,388	
Agency Total	1,922	1,284	1,501	2,012	2,418	2,386	2,280	2,822	8,970	1,774	756	1,925	30,050	
Santa Clara Valley Water District														
Entitlement water	0	179	2,737	4,451	3,884	5,394	5,979	3,614	3,187	6,028	4,711	3,665	43,829	100,000
Carryover entitlement water	912	109	0	0	0	0	0	0	0	0	0	0	1,021	
Stored entitlement water	0	0	0	0	0	25,000	20,000	0	0	0	0	0	45,000	
Agency Total	912	288	2,737	4,451	3,884	30,394	25,979	3,614	3,187	6,028	4,711	3,665	89,850	
Recreation/Fish and Wildlife														
Recreation/fish and wildlife water	2	3	2	6	19	20	26	31	24	12	4	1	150	
SWP	3,871	2,593	6,035	9,117	10,233	37,491	33,142	11,425	16,558	11,709	8,011	7,447	157,632	
Non-SWP	2,911	2,300	3,234	2,309	2,159	3,236	2,165	600	3,727	1,200	1,467	3,759	29,067	
Area Total	6,782	4,893	9,269	11,426	12,392	40,727	35,307	12,025	20,285	12,909	9,478	11,206	186,699	186,000
San Joaquin Valley Area														
Castaic Lake Water Agency														
Entitlement water	1,712	1,846	1,528	1,600	853	1,977	2,073	2,338	125	0	0	0	14,052	
County of Kings														
Entitlement water	0	0	0	400	100	500	600	600	600	600	600	0	4,000	4,000
Dudley Ridge Water District														
Entitlement water	148	1,053	1,046	3,334	4,166	9,651	12,365	10,820	1,890	1,729	170	2,524	48,896	53,370
Interruptible entitlement water	293	2,298	1,866	0	0	0	0	0	0	0	0	0	4,457	
Transferred carryover entitlement														
water from KCWA	1,455	0	0	0	0	0	0	0	0	0	0	0	1,455	
Transferred entitlement water to TLBWD*	0	0	0	0	0	0	95	0	1,500	2,000	0	0	3,595	
Agency Total (* excluded Transferred	4 000	0.054	0.040		4.400	0.054	40.005	40.000	4.000	4 700	470	0.504	<b>54000</b>	
Entitlement Water)	1,896	3,351	2,912	3,334	4,166	9,651	12,365	10,820	1,890	1,729	170	2,524	54,808	
Empire West Side Irrigation District	4.007	404	•	•			•		•	•	0		4.074	0.000
Entitlement water	1,207 497	164 0	0	0 0	0	0	0 0	0	0 0	0	0	0	1,371 497	3,000
Carryover entitlement water		•	0		-	-		0 0			0	0		
Agency Total	1,704	164	0	0	0	0	0	U	0	0	Ü	0	1,868	
Kern County Water Agency Entitlement water	5,710	23,468	41,482	50,591	102,320	169,473	212,593	189,487	58,419	34,968	24,246	41,756	954,513	1,117,060
Interruptible entitlement water	1,824	13,042	787	0,591	102,320	0	212,595	109,467	0 0	34,900	24,240	41,730	15,653	1,117,000
Carryover entitlement water	41,956	8,939	0	0	0	0	0	0	0	0	0	0	50,895	
Transferred entitlement water to WWD*	41,930	0,939	0	11,846	16,000	76,782	35,132	2,287	9,041	5,459	4,500	0	161,047	
Transferred entitlement water to TLBWSD *	0	0	0	0	0,000	0	0	0	0	1,500	4,500	0	1,500	
Transferred carryover entitlement water to	Ü	Ü	Ü	Ü	Ü	Ü	Ü	Ü	Ü	1,000	Ū	Ü	1,000	
DRWD*	1.455	0	0	0	0	0	0	0	0	0	0	0	1.455	
Agency Total (*excluded water)	49,490	45.449	42,269	50,591	102,320	169,473	212,593	189,487	58,419	34,968	24,246	41,756	1,021,061	
Oak Flat Water District	10,100	10, 110	.2,200	00,00.	.02,020	100, 110	2.2,000	100, 101	00, 0	0.,000	2.,2.0	,. 00	1,021,001	
Entitlement water	0	0	29	548	766	1,084	1,227	797	339	114	0	0	4,904	5,700
Tulare Lake Basin Water Storage District						•	•							
Entitlement water	0	0	0	0	0	2,755	24,889	15,871	39,262	21,832	4,704	5,187	114,500	118,500
Interruptible entitlement water	0	7,179	1,358	0	0	0	0	0	0	0	0	0	8,537	•
Carryover entitlement water	34,077	4,493	0	0	0	0	0	0	0	0	0	0	38,570	
Transferred entitlement water from KCWA	0	0	0	0	0	0	0	0	0	1,500	0	0	1,500	
Transferred entitlement water from DRWD	0	0	0	0	0	0	95	0	1,500	2,000	0	0	3,595	
Transferred entitlement water from														
SLOCFCWCD	0	0	0	0	0	0	0	0	100	0	0	0	100	
Purchase Pool A entitlement water	0	0	0	10,019	2,358	14,500	17,500	26,891	0	0	0	0	71,268	
Transferred entitlement water to WWD*	0	0	0	0	0	0	3000	0	500	500	0	0	4,000	
Agency Total (*excluded water)	34,077	11,672	1,358	10,019	2,358	17,255	42,484	42,762	40,862	25,332	4,704	5,187	238,070	

(Acre-feet)

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1996 1996 Month Total Contract Feb. Mar. Contracting Agency and Type of Service Jan. Apr. May June July Aug. Sep. Oct. Nov. Dec. Deliveries Entitlement Westlands Water District Transferred entitlement water from KCWA 0 0 0 11,846 16,000 76.782 35.132 2.287 9.041 5.459 4.500 161.047 Transferred entitlement water from TLBWSD 0 0 3.000 500 500 4.000 n 0 Ω n n n 0 Transferred DCVWLNG water from Lower Tule River\* 0 0 0 0 0 12.500 0 1.250 13.750 Transferred DCVWLNG water from Pixley ID\* (a 0 0 0 0 0 0 0 12.500 0 0 0 1.250 13.750 Agency Total (\*excluded water) 0 0 11.846 16.000 76.782 38.132 2.287 9.541 5.959 4.500 165,047 0 Department of Fish and Game Recreation/fish and wildlife water 87 3 61 57 53 127 91 17 753 56 54 89 58 Parks and Recreation Recreation/fish and wildlife water 31 76 n 2 11 12 2 5 2 2 Agency Total 88 4 61 59 67 66 84 129 96 96 60 19 829 62,486 309,558 34,280 SWP 88,967 48,157 78,397 126,630 276,788 249,220 111,872 68,798 49,486 1,504,639 Non-SWP 25,000 2,500 27,500 0 0 0 0 Area subtotal 88.967 62,486 48.157 78.397 126,630 276.788 309.558 274.220 111.872 68.798 34.280 51.986 1.532.139 1.301.630 San Joaquin Valley Area CVP Water Conveyed Annual Contracts Musco Olive Products, Inc. 21 21 25 23 22 21 43 3 25 35 25 268 Veterans Administration Cemetery 3 4 30 Subtotal 22 22 25 26 26 25 29 46 26 298 36 Cross Valley Canal Contracts Transferred DCVWLNG entitlement water to WWD\* (a 0 0 0 0 0 0 12.500 0 0 0 1,250 13.750 Transferred DCVWLNG entitlement water to WWD\* (a 0 0 0 0 0 0 0 12,500 0 0 0 1.250 13.750 Subtotal (\*excluded water) n 0 n n n n n 0 n n 0 U.S.Bureau of Reclamation 2,188 0 384 656 0 99 9,206 Federal wheeling (b 0 0 1,046 1,901 2,609 323 Make-up water for exports deferred 76,361 53,395 129.756 n 0 n n 0 n n 0 Ω 0 46,324 Salmon smolt studies 0 0 n 0 0 0 0 0 0 0 0 46,324 Recreation/fish and wildlife water (San Luis) 71 3 52 46 55 55 68 106 77 81 48 16 678 Subtotal 2,259 3 52 430 711 55 68 1,152 1,978 79,051 53,766 46,439 185,964 25 77 1,158 Non-SWP Area subtotal (CVP water) 2.281 456 737 80 77 2.007 79.097 53.802 46.465 186.262 Area Summary 88.967 62,486 48,157 126,630 276,788 309.558 34.280 1.504.639 SWP 78,397 249,220 111,872 68,798 49.486 Non-SWP 2.281 25 77 456 737 80 77 1.158 2.007 79.097 53.802 46.465 186.262 Area Total 91,248 62.511 48.234 78.853 127.367 276.868 309.635 250,378 113,879 147,895 88.082 95,951 1,690,901 1,301,630 Central Coastal Area San Luis Obispo County Flood Control and Water Conservation District Transferred entitlement water to TLBWSD \* 0 0 100 0 0 100 25,000 Agency Total (\*excluded water) 0 0 0 0 0 0 0 0 0 0 0 Santa Barbara County Flood Control and Water Conservation District Entitlement water 0 0 0 0 0 0 0 0 0 0 0 0 45,486 0 Central Coast Water Authority Coast Fill 0 0 0 81 0 86 n n n n n 5 0 0 0 0 0 0 0 0 0 0 0 0 0 Non-SWP 0 0 0 0 0 0 0 0 0 81 5 0 86 Area Total 0 0 0 0 0 0 0 81 0 86 70,486

Table 10-4 Water Delivered in 1996, by Month

(Acre-feet)

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						Mon	th						1996 Total	1996 Contract
Contracting Agency and Type of Service	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Deliveries	Entitlement
Southern California Area														
Antelope Valley-East Kern Water Agency														
Entitlement water	1,843	1,792	3,718	5,566	6,706	6,915	8,275	7,354	5,691	3,886	2,501	2,109	56,356	138,400
Transferred entitlement water from Mojave														
Water Agency	75	64	107	96	114	201	157	163	174	83	39	43	1,316	
Agency Total	1,918	1,856	3,825	5,662	6,820	7,116	8,432	7,517	5,865	3,969	2,540	2,152	57,672	
Castaic Lake Water Agency	,	,	-,	-,	-,-	, -	-, -	*-	-,	-,	,	, -	- /-	
Entitlement water	785	770	808	1,028	1,801	2,037	3,066	3,314	2,637	2,030	172	0	18,448	54,200
Flexible storage withdrawal water	0	0	0	0	0	0	0	0,011	2,001	0	645	611	1,256	01,200
Agency Total	785	770	808	1,028	1,801	2,037	3,066	3,314	2,637	2,030	817	611	19,704	
Coachella Valley Water District	700	110	000	1,020	1,001	2,001	0,000	0,014	2,007	2,000	017	011	10,704	
Entitlement water	0	0	2,310	0	0	5,325	5,898	5,895	3,672	0	0	0	23,100	23,100
Purchase Pool B entitlement water	0	0	2,310	3,852	21,511	13,756	0,696	0,695	3,672	0	0	0	39,119	23,100
									•					
Agency Total	0	0	2,310	3,852	21,511	19,081	5,898	5,895	3,672	0	0	0	62,219	
Crestline-Lake Arrowhead Water Agency		_	_	_	_	_	_					_		
Entitlement water	41	0	0	0	0	0	0	119	141	135	49	0	485	5,800
Local water	18	45	58	63	78	111	161	69	0	0	39	82	724	
Agency Total	59	45	58	63	78	111	161	188	141	135	88	82	1,209	
Desert Water Agency														
Entitlement water	0	0	3,810	0	0	8,814	9,763	9,649	6,064	0	0	0	38,100	38,100
Purchase Pool B entitlement water	0	0	0	6,353	35,479	22,690	0	0	0	0	0	0	64,522	
Agency Total	0	0	3.810	6.353	35,479	31,504	9.763	9.649	6.064	0	0	0	102,622	
Littlerock Creek Irrigation District			-,	-,	,	. ,	-,	-,-	-,				- /-	
Entitlement water	0	0	0	89	80	66	83	69	46	61	0	0	494	2,300
Metropolitan Water District of Southern	· ·	Ů	· ·	00	00	00	00	00	-10	01	· ·	Ū	707	2,000
California														
Entitlement water	0	11,192	13,739	66,007	19,857	19,593	64,880	81,437	72,908	52,470	38,051	28,293	468,427	2,011,500
					19,657	19,595	04,000	01,437	72,900	0 32,470	30,031			2,011,500
Carryover entitlement water	31,012	9,109	0	0	-	-	-	ŭ	•	Ū	-	0	40,121	
Stored entitlement water	0	14,278	19,295	22,700	13,559	0	0	0	2,094	11,000	1,906	0	84,832	
Agency Total	31,012	34,579	33,034	88,707	33,416	19,593	64,880	81,437	75,002	63,470	39,957	28,293	593,380	
Mojave Water Agency														
Entitlement water	1,045	543	565	508	11	441	535	535	450	507	284	687	6,111	50,800
Transferred entitlement water to Antelope														
Valley-East Kern Water Agency*	75	64	107	96	114	201	157	163	174	83	39	43	1,316	
Agency Total (*excluded water)	1,045	543	565	508	11	441	535	535	450	507	284	687	6.111	
Palmdale Water District	.,												-,	
Entitlement water	1,251	506	16	223	768	1,726	2,181	2,120	1,860	337	13	433	11,434	17,300
San Bernardino Valley Municipal Water Dis-	1,201	000				.,. 20	2,.0.	2,.20	1,000	00.	.0	.00	,	,000
trict														
Entitlement water	40	26	153	102	208	288	357	1,041	1,566	1,661	541	81	6,064	102,600
	40	20	133	102	200	200	331	1,041	1,300	1,001	341	01	0,004	102,000
San Gabriel Valley Municipal Water District	0	0	0	0.505	4 400	0.050	0.570	0.400	0.000		005	0	45.000	00.000
Entitlement water	0	0	0	2,525	1,420	2,353	2,579	3,406	3,330	51	325	0	15,989	28,800
San Gorgonio Pass Water Agency														
Entitlement water	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ventura County Flood Control District														
Entitlement water	0	0	0	0	0	0	0	0	0	0	0	0	0	20,000
United Water Conservation District														
Regulated delivery of local supply	0	0	0	5,698	721	163	0	0	0	0	0	0	6,582	
Recreation/Fish and Wildlife														
Recreation/fish and wildlife water	121	58	85	184	187	231	349	789	531	202	101	90	2,928	
	121	30	03	104	107	201	5-5	100	331	202	101	30	2,020	
SWP	36.231	38.383	44.664	109,296	101.779	84.547	98.284	115.960	101.164	72,423	44.666	32,429	879.826	2,492,900
Non-SWP	36,231 18	30,363 45	44,664 58	5,761	799	84,547 274	96,264 161	115,960	101,164	72,423	44,666 39	32,429 82	7,306	2,492,900
Area Total	36,249	38,428	44,722	115,057	102,578	84.821	98,445	116,029	101,164	<b>72,423</b>	44,7 <b>05</b>	32,511	887,132	2,492,900
AIGA IVIAI	30,249	30,420	44,122	113,037	102,376	04,021	30,443	110,029	101,104	12,423	44,700	32,311	001,132	2,492,900

(Acre-feet)

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						Мог	nth						1996 T-1-1	1996
Contracting Agency and Type of Service	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total Deliveries	Contract Entitlement
All Agencies														
Total 1996 agriculture and M&I														
entitlement water	13,940	41,702	72,774	140,511	149,602	245,037	365,688	348,553	207,746	131,868	79,282	85,829	1,882,532	
Total interruptible entitlement water	2,117	22,519	4,011	0	0	0	0	0	0	0	0	0	28,647	
Total carryover entitlement water (c	110,613	22,801	0	0	0	0	0	0	0	0	0	0	133,414	
Total transferred entitlement water (d	75	64	107	11,942	16,114	76,983	38,384	2,450	11,315	9,542	4,539	43	171,558	
Total stored entitlement water	0	14,278	19,295	22,700	13,559	25,000	20,000	0	8,294	11,000	1,906	0	136,032	
Benicia entitlement water	0	42	880	1,046	1,353	1,254	1,173	1,183	1,151	1,161	672	491	10,406	
Vallejo entitlement water	0	125	190	791	1,017	978	972	879	673	317	32	0	5,974	
Purchase Pool A entitlement water	0	0	0	10,019	2,358	14,500	17,500	26,891	0	0	0	0	71,268	
Purchase Pool B entitlement water	0	0	0	10,205	56,990	36,446	0	0	0	0	0	0	103,641	
Subtotal (entitlement water delivered)	126,745	101,531	97,257	197,214	240,993	400,198	443,717	379,956	229,179	153,888	86,431	86,363	2,543,472	
Flexible storage withdrawal water	0	0	0	0	0	0	0	0	0	0	645	611	1,256	
Recreation/fish and wildlife water	211	65	148	249	273	317	459	949	651	310	165	110	3,907	
Subtotal (entitlement-related water)	211	65	148	249	273	317	459	949	651	310	810	721	5,163	
Subtotal (SWP water)	126,956	101,596	97,405	197,463	241,266	400,515	444,176	380,905	229,830	154,198	87,241	87,084	2,548,635	
Wheeling local water	23,056	2,540	3,687	15,494	140,924	168,864	196,979	169,682	66,333	72,365	63,762	47,017	970,703	
General wheeling	0	0	0	0	0	0	0	0	667	0	0	0	667	
Coast fill	0	0	0	0	0	0	0	0	0	81	5	0	86	
Subtotal (other water)	23,056	2,540	3,687	15,494	140,924	168,864	196,979	169,682	67,000	72,446	63,767	47,017	971,456	
Make-up water for exports deferred	0	0	0	0	0	0	0	0	0	76,361	53,395	0	129,756	
Salmon smolt studies	0	0	0	0	0	0	0	0	0	0	0	46,324	46,324	
Transferred DCVWLNG water (a (e	0	0	0	0	0	0	0	25,000	0	0	0	2,500	27,500	
Conveying CVP water annual contract	22	22	25	26	26	25	9	6	29	46	36	26	298	
Conveying CVP water (Kern National Wildlife Refuge USBR)	2.188	0	0	384	656	0	0	1.046	1.901	2.609	323	99	9,206	
Conveying CVP water recreation/fish	71	3	52	46	55	55	68	106	77	81	48	16	678	
and wildlife water (San Luis)	/ 1	3	52	40	55	55	00	100	11	01	46	10	6/8	
Subtotal (CVP water)	2,281	25	77	456	737	80	77	26,158	2,007	79,097	53,802	48,965	213,762	
Subtotal (non-entitlement water)	25,337	2,565	3,764	15,950	141,661	168,944	197,056	195,840	69,007	151,543	117,569	95,982	1,185,218	
Grand Total	152,293	104,161	101,169	213,413	382,927	569,459	641,232	576,745	298,837	305,741	204,810	183,066	3,733,853	4,111,341

a) DCVWLNG is water wheeled by the Department directly to Cross Valley contractors. b) Kern National Wildlife Refuge USBR.

c) Includes 1,455 acre-feet of 1995 carryover water transferred to DRWD from KCWA.

d) Does not include 1,455 acre-feet of 1995 carryover water transferred to DRWD from KCWA.
e) Includes 27,500 acre-feet of DCVWLNG water transferred to Westlands Water District from Lower Tule River and Pixley Irrigation District.

Table 10-5
Total Amounts of Annual Water Entitlements and Water Conveyed, by Type, 1962 through 1996
(Acre-Feet)

	An	nual Entitle	ements Acc	ording to Loi	ng-Term Wat	er Supply Co	ntracts					Water Conve	yed				
											Deliverie	S					
Year	Upper Feather River Area (1)	North Bay Area (2)	South Bay Area (3)	San Joaquin Valley Area (4)	Central Coastal Area (5)	Southern California Area (6)	Total (7)	Entitlement Wate	U	Surplus and Inscheduled Water (a (9)	Other Water (b	Feather River Diversions (c (11)	Recreation Water (12)	Subtotal (13)	Initial Fill Water (14)	Operational Losses and Storage Charges (d (15)	Total (16)
1962 1963	0	0	0	0	0	0	0	0		0	18,289 22,456		0	18,289 22,456	9 71	272 185	18,570 22,712
1964	0	0	0	0	0	0	0	0		0	32,507		0	32,507	171	152	32,830
1965	0	0	0	0	0	0	0	0		0	44,105		0	44,105	93	729	44,927
1966	0	0	0	0	0	0	0	0		0	67,928		0	67,928	0	1,746	69,674
1967 1968	0 550	0	11,538 109,900	0 81,050	0	0	11,538 191,500	11,538 171,709		0 121,534	53,605 14,777	866,926	0	65,143 1,174,946	8,328 498,926	4,212 117,906	77,683 1,791,778
1969	620	0	98,700	168,075	0	0	267,395	193,020		72,397	18,829	794,374	0	1,078,620	510,614	72,196	1,661,430
1970 1971	700 890	0	114,200	207,700 258,500	0	0	322,600	233,993 357,340		133,024	38,080 44,119	759,759 778,362	0 8	1,164,856 1,475,848	23,947 7,853	2,435	1,191,238 1,489,513
1971	890	U	116,200	258,500	U	U	375,590	357,340		296,019	44,119	118,302	ō	1,475,848	7,853	5,812	1,469,513
1972	970	0	118,300	420,766	0	201,723	741,759	611,801		423,964	66,638	817,398	6,489	1,926,290	100,274	53,062	2,079,626
1973	1,100	0	120,400	392,352	0	472,400	986,252	694,388		296,416	42,511	800,743	1,155	1,835,213	204,638	53,798	2,093,649
1974 1975	1,230 1,610	0	122,400 124,500	470,350 556,509	0	588,220 704,250	1,182,200 1,386,869	874,077 1,223,990		417,676 622,902	46,224 63,793	911,613 862,218	2,118 3,377	2,251,708 2,776,280	237,554 103,352	10,657 (94,606)	2,499,919 2,785,026
1976	1,990	0	126,500	555,117	0	824,780	1,508,387	1,373,002		580,110	115,217	946,440	1,745	3,016,514	61,122	(681,025)	2,396,611
1977	2,420	0	128,600	594,100	0	942,201	1,667,321	574,155		0	389,065	581,994	1,111	1,546,325	0	(131,151)	1,415,174
1978 1979	1,850 2,130	0	130,700 132,700	647,262 715,385	0 0	1,038,222 1,177,873	1,818,034 2,028,088	1,452,699 1,659,896		16,914 648,389	121,225 187,630	786,517 882,549	1,691 1,766	2,379,046 3,380,230	64,443 12,302	717,370 (83,430)	3,160,859 3,309,102
1979	1,810	500	134,800	715,385	1,946	1,304,914	2,028,088	1,529,749		404,557	46,459	875,045	2,131	2,857,941	12,302	(26,606)	2,831,335
1981	1,940	650	137,000	830,700	2,813	1,419,365	2,392,468	1,909,562		908,428	279,161	838,557	4,688	3,940,396	0	(802,263)	3,138,133
1982	1,970	800	139,200	889,200	5,626	1,537,749	2,574,545	1,750,024		215,873	154,882	776,330	4,646	2,901,755	0	480,752	3,382,507
1983 1984	2,000 3,630	950 1,100	141,400 143,600	880,648 991,911	8,439 12,698	1,668,557 1,731,398	2,701,994 2,884,337	1,184,869 1,588,619		13,019 262,917	181,453 381,024	602,905 832,332	7,849 7,040	1,990,095 3,071,932	0	(90,997) (140,182)	1,899,098 2,931,750
1985	3,760	1,100	145,800	1.031.749	21,138	1,852,149	3,055,846	1,995,453		307,672	404,842	870,008	4,033	3,582,008	0	92,885	3,674,893
1986	4,190	1,400	148,100	1,139,200	28,210	1,971,190	3,292,290	1,995,636 (	(e	36,620 (	f 193,606	791,737	3,865	3,021,464	0	284,380	3,305,844
1987	4,620	1,550	150,300	1,201,200	35,204	2,091,241	3,484,115	2,130,086 (	(g	114,907	377,592	831,947	7,672	3,462,204	0	(390,413)	3,071,791
1988	5,060	15,471	152,500	1,258,800	43,722	2,212,782	3,688,335		(h	0	507,076	794,834	4,889	3,691,921	0	(92,850)	3,599,071
1989	5,500	24,615	156,700	1,303,100	56,342	2,411,933	3,958,190	2,853,747 (i	۲.	0 90	474,559	830,500	8,135	4,166,941	0	447,917	4,614,858
1990 1991	6,040 11,880	28,190 29,590	160,900 166,400	1,355,000 1,355,000	70,486 70,486	2,487,900 2,497,500	4,108,516 4,130,856	2,582,151 (j 549,113 (k		3,521	424,697 551,051	875,099 565,395	9,262 4,879	3,891,299 1,673,959	0	(528,869) 167,435	3,362,430 1,841,394
1992	11,920	32,010	171,900	1,342,300	70,486	2,510,200	4,138,816	1,471,454 (	(1	1,156	144,789	613,978	2,605	2,233,982	0	(63,541)	2,170,441
1993 1994	11,960	34,620	177,400	1,342,300	70,486	2,510,200	4,146,966	2,315,235		0	254,854	822,589	2,609	3,395,287	0	726,123	4,121,410
1994	12,000 12,050	37,215 44,030	182,000 184,000	1,342,300 1,342,300	70,486 70,486	2,510,200 2,510,200	4,154,201 4,163,066	1,861,976 2,031,423		0	236,739 62,836	874,018 860,077	8,200 2,575	2,980,933 2,956,911	0	(295,405) 69,536	2,685,528 3,026,447
1995	12,050	48,225	186,000	1,342,300	70,486	2,492,900	4,111,341	2,543,472		0	251,391	934,997	3,907	3,733,767	86	491,550	4,225,403
Total	128,490	302,166	4,132,638	24,745,304	709,540	41,670,047	71,688,185	42,109,299	-	5,898,105	6,329,598	23,379,241	108,445	77,824,688	1,833,783	310,236	79,953,118

a) Values include amounts of deliveries to short-term contractors (Mustang Water District, 1970-72; Tracy Golf and Country Club, 1974, 1979, and 1980; Green Valley Water District, 1974, 1975, 1978, 1979, 1980, and 1985; and Granite Construction Company, 1980).

b) Includes amounts of SWP and non-SWP water conveyed for SWP and non-SWP contractors.

c) Includes amounts of water diverted under various water rights agreements.

d) Amounts reflect net effect of (1) operational losses from SWP transportation facilities; (2) changes in reservoir storage south of the Delta; (3) storable local inflows to SWP reservoirs; (4) side inflow to San Luis Canal; and (5) inflow into California Aqueduct from Kern River Intertie.

e) Includes 37,170 acre-feet of entitlement water carried over from 1985.

f) Includes 12,270 acre-feet of surplus water carried over from 1985.

g) Includes 639 acre-feet of 1988 entitlement water delivered during 1987 and 16,171 acre-feet of entitlement water recaptured from groundwater storage.

h) Includes 67,581 acre-feet of 1987 entitlement water delivered in 1988 and 8,749 acre-feet recaptured from groundwater storage.

i) Includes 149,880 acre-feet of 1988 entitlement water delivered in 1989 and 89 acre-feet of 1990 entitlement water delivered during 1989.

j) Includes 128,546 acre-feet of 1989 water delivered in 1990.

k) Includes 27,075 acre-feet of 1990 entitlement water and 148 acre-feet of 1992 entitlement water delivered in 1991.

l) Includes 92,282 acre-feet of 1991 entitlement water delivered in 1992; 3,484 acre-feet of make-up water; and 72,000 acre-feet recaptured from groundwater storage (including 57,171 acre-feet of Groundwater Demonstration Program water).

## Water Deliveries and Credits to Long-Term SWP Contractors

Table 10-3 shows amounts of water delivered in 1996 and future entitlement credits granted to long-term contractors through 1996. The following information about specific columns in Table 10-3 is arranged by column number.

**1996 Entitlement Water Delivered.** Columns 1 through 4 show a detailed breakdown of entitlement water delivered to long-term water supply contractors in 1996.

**1996 Interruptible Water.** Column 5 shows 28,647 acre-feet of 1996 Interruptible Water delivered to long-term water supply contractors in 1996.

**1995** Carryover Entitlement Water Delivered During 1996. In some instances, with the Department's approval, contractors may delay delivery of entitlement water to the next year (also known as carryover entitlement water). Column 6 shows that the SWP delivered 131,959 acre-feet of entitlement water carried over from 1995 to six contractors.

**Article 12(d) water.** No Article 12(d) water was delivered in 1996. (See column 7).

**Article 14(b) Water**. No Article 14(b) water was delivered in 1996. (See column 8).

**Purchase Pool A Water.** Column 9 shows 71,268 acre-feet of Purchase Pool A water delivered to TLBWSD in 1996.

**Purchase Pool B Water.** Column 10 shows 103,641 acre-feet of Purchase Pool B water delivered to two long-term water supply contractors in 1996.

**Total Entitlement Water Delivered.** Column 11 shows all entitlement water delivered in 1996, a total of 2,543,472 acre-feet. This amount includes 165,047 acre-feet of entitlement water transferred to or exchanged with WWD, and 174,909 acre-feet of purchase pool water.

**Other Water Deliveries.** Column 12 includes deliveries of water other than entitlement water, such as deliveries of nonproject water, to long-term water

contractors. Nonproject water is generally defined as water purchased from non-SWP agencies. The water is conveyed by the Department and in some instances stored in SWP facilities under special agreements for future deliveries.

In 1996, other water deliveries totaled 31,714 acre-feet.

**Total Deliveries.** Column 13 shows total amounts of water delivered to long-term contractors. In 1996, the SWP delivered 2,575,186 acre-feet to 25 long-term contractors. This amount included 2,543,472 acre-feet of entitlement water and 31,714 acre-feet of other SWP and nonproject water.

Carryover Water Approved for Delivery. For several years, the Department has offered contractors the opportunity to carry over a portion of their entitlement water approved for delivery in the current year for delivery during the next year. The carryover program was designed to encourage the most effective and beneficial use of water and to avoid obligating the contractors to use or lose the water by December 31 of each year. The SWP contractors' long-term contracts and amendments state the criteria of carrying over entitlement water from one year to the next. The exception is EWSID, which has an ongoing carryover program whose terms and conditions are specified in an agreement between the Department and the district dated October 1, 1979.

In 1996, there was no carryover water approved for future delivery.

#### Water Delivered in 1996, by Month

During 1996, the SWP provided water service to 42 agencies, including 25 long-term water contractors. Those agencies and the amounts of water delivered to them by month are listed in Table 10-4.

This section and the accompanying table summarize water deliveries for 1996. Information about those deliveries is categorized as State Water Project Water and Nonproject Water.

**State Water Project Water.** State Water Project water is classified into the following categories:

Entitlement water

current year entitlement (1996)
interruptible entitlement (1996)
transfer entitlement (1996)
carryover entitlement (1995)
Benicia and Vallejo entitlement (1996)
stored entitlement (1996)
Pool A entitlement (1996)
Pool B entitlement (1996)

Recreation and fish and wildlife water enhancement mitigation

Operational flood release water operational flood release.

In addition, the SWP may approve exchanges and transfers of entitlement water among various contractors if certain conditions are met. The SWP may temporarily loan water to contractors if satisfactory arrangements are made for repayment and water is available within the system.

In 1996, SWP water was delivered in the following classifications and amounts.

#### **Entitlement Water**

A total of 2,543,472 acre-feet of 1996 entitlement water was delivered to 25 long-term contractors.

**Transfers of Entitlement Water.** During 1996, a total of 171,558 acre-feet of entitlement water was transferred between six SWP long-term contractors and one non-SWP water agency as follows:

- DRWD to TLBWSD, 3.595 acre-feet:
- KCWA to WWD, 161,047 acre-feet;
- KCWA to TLBWSD, 1,500 acre-feet;
- TLBWSD to WWD, 4,000 acre-feet;
- SLOCFCWCD to TLBWSD, 100 acre-feet; and
- MWA to Antelope Valley-East Kern Water Agency, 1,316 acre-feet;

Carryover Entitlement Water. In 1996, SWP delivered 131,959 acre-feet of 1995 carryover entitlement water to Solano County Water Agency, Santa Clara Valley Water District, EWSID, KCWA, TLBWSD, and MWD. KCWA transferred 1,455 acre-feet of carryover water to DRWD.

Interruptible Entitlement Water. The interruptible entitlement water program allows a contractor to take delivery of entitlement water over the approved and scheduled allocations for the current year. Interruptible water is available for delivery on a short-term basis as determined by the Department when scheduled project demands are being delivered and operational requirements for project water deliveries, water quality, and other requirements are being met.

In 1996, three contractors participated in the program. A total of 28,647 acre-feet of interruptible water was delivered to DRWD, KCWA, and TLBWSD.

Water for Recreation and Fish and Wildlife. A total of 3,907 acre-feet of SWP water was conveyed for recreational use and enhancement of fish and wildlife.

Recreational Use. The SWP delivered 715 acre-feet of water for facilities at Lake Del Valle, O'Neill Forebay, Silverwood Lake, Lake Perris, and Castaic Lake. In addition, 2,362 acre-feet were delivered to Castaic Lake and Castaic Lagoon, an impoundment downstream from Castaic Lake devoted entirely to recreation.

Trout Fishery. The SWP released 1 acre-foot of water to maintain a trout fishery in Piru Creek as a condition of obtaining a license from the Federal Energy Regulatory Commission to develop a power plant at Pyramid Lake.

Wildlife Management. The SWP delivered 829 acre-feet of water to use in managing wildlife in the Pilibos Wildlife Area, located on about 770 acres of land near O'Neill Forebay, 40 miles south of Los Banos.

**Operational Flood Release Water**. There was no operational flood release water delivered in 1996.

#### Nonproject Water

In 1996, the Department used SWP facilities to convey non-SWP water for various agencies according to the terms of water rights and water transfer and exchange agreements. The Department used SWP facilities to convey CVP water; water transferred

from Byron-Bethany Irrigation District to ACFCWCD-Zone 7; water rights water; and water acquired by WWD from Kings River Water Association for delivery within WWD. Detailed information concerning those conveyances follow.

Alameda County Flood Control and Water Conservation District-Zone 7. Under a contract executed July 28, 1995, between the Department and ACFCWCD-Zone 7, the Department conveyed 667 acre-feet of non-SWP water for ACFCWCD-Zone 7 during 1996. The Department conveyed this water in September directly from the Delta to Reach 2 of the South Bay Aqueduct. ACFCWCD-Zone 7 purchased the rights to transfer this water from Byron-Bethany Irrigation District under a separate contract.

Central Valley Project Water. In 1996, the Department conveyed 213,762 acre-feet of CVP water through SWP facilities. Conveyance was made in accordance with agreements negotiated with USBR as follows:

Cross Valley Canal Contractors. Under two individual agreements between the Department and LTRID and PID, dated July 12, 1996, the Department conveyed 13,750 acre-feet of CVP water for each district to WWD from Reach 5 of the California Aqueduct.

Musco Olive Products, Incorporated. In accordance with terms of two conveyance agreements with the USBR dated May 9, 1995, and April 16, 1996, the Department conveyed 268 acre-feet of CVP water to Reach 2A of the California Aqueduct for Musco Olive Products, Inc.

Recreational and Wildlife Use. In 1996, the Department conveyed 678 acre-feet of CVP water to the Department of Fish and Game at O'Neill Forebay and at WWD's Lateral 4L within Reach 5 of the joint use facilities of the California Aqueduct.

U.S. Bureau of Reclamation. During October through December 1996, the Department conveyed a total of 176,080 acre-feet of CVP water for USBR through SWP facilities under two agreements dated December 13, 1996, and January 12, 1997. This amount includes 129,756 acre-feet of make-up water for exports deferred, and 46,324 acre-feet for salmon smolt studies.

U.S. Department of Veterans Affairs. Under an annual agreement with the USBR dated April 16, 1996, the Department conveyed 30 acre-feet through SWP facilities to maintain the San Joaquin Valley National Cemetery near Santa Nella, California. Deliveries were made through Reach 2B of the California Aqueduct.

U.S. Fish and Wildlife Service. The Department conveyed 9,206 acre-feet of CVP water for the USFWS according to provisions of a cooperative agreement initiated by the USBR dated September 9, 1994. The water was conveyed to the Kern National Wildlife Refuge through Reach 10A of the California Aqueduct.

Westlands Water District-Kings River. An agreement dated May 17, 1996, between the Department and WWD approved the acceptance into the California Aqueduct of up to 10,000 acre-feet of Kings River flood water from the Mendota Pool for conveyance to WWD within reaches 5, 6, and 7 of the California Aqueduct. The non-SWP water was delivered from the Mendota Pool to the Aqueduct through WWD's Lateral 7. The agreement was effective from May through June 1996. During this period 955 acrefeet of Kings River water was conveyed to WWD.

Water Rights Water. Water in this category is transported through SWP facilities to long-term SWP contractors and other agencies according to terms of various local water rights agreements. Some water simply passes through SWP transportation facilities; a portion is stored in SWP reservoirs for release at a later time. In 1996, 970,703 acre-feet of water in this category were delivered to the Feather River, North Bay, South Bay, and Southern California areas.

Feather River Area. Nine nonproject agencies in the Feather River area received 934,997 acre-feet. Those agencies are Last Chance Creek Water District (11,404 acre-feet), Thermalito Irrigation District (2,613 acre-feet), Oroville-Wyandotte Irrigation District (7,109 acre-feet), Western Canal Water District (255,021 acre-feet), Joint Water District Board (632,787 acre-feet), Tudor Mutual Water Company (3,280 acre-feet), Oswald Water District (1,063 acre-feet), Garden Highway Water Company (13,705 acre-feet), and Plumas Mutual Water Company (8,015 acre-feet).

North Bay Area. In the North Bay area, the Department delivers water as Vallejo permit water to SCWA. The city of Vallejo, as a member agency, has contractual rights to extra capacity in the North Bay Aqueduct to transport this water. In 1996, no water was delivered under this classification.

South Bay Area. In the South Bay area, 28,400 acrefeet of local water were delivered to ACFCWCD-Zone 7 and ACWD. These two South Bay Aqueduct contractors hold water rights to runoff from the Lake Del Valle watershed.

Southern California. In Southern California, 724 acre-feet of local runoff from the Houston Creek watershed were stored and delivered to Crestline-Lake Arrowhead Water Agency. These local water rights have been signed over to the Department as part of the contractual arrangements for storing and delivering this local runoff for the Crestline-Lake Arrowhead Water Agency. Also, under an agreement dated October 24, 1978, between the Department, the County of Los Angeles, Newhall Land and Farming Company, Newhall County Water District, and United Water Conservation District, the Department stored and released 6,582 acre-feet of flood water from Castaic Reservoir during 1996.

## Annual Water Entitlements and Water Delivered Since 1962

Information about annual water entitlements and water conveyed for the past 34 years is contained in Table 10-5. The following discussion of entitlements and water conveyed is arranged according to column numbers.

Annual Entitlements. Columns 1 through 7 of Table 10-5 show the amount of the long-term contractor's entitlement water by area for years 1962 through 1996 as specified in the entitlement schedules (Table A, Annual Entitlements) of the long-term water supply contracts.

In some instances these entitlement schedules, projections of each contractor's need for water to 2035, have been amended to meet the needs of individual contractors. The amounts of entitlement water each contractor may request for years 1962 through 2035

may be found in Table B-4, Annual Entitlements to Project Water, in Appendix B.

**Water Delivered.** Columns 8 through 16 show water delivered or conveyed, including initial fill water and operational losses and storage changes.

Entitlement Water. Column 8 shows amounts of entitlement water delivered each year from 1962 through 1996. In 1996, entitlement water delivered to 25 contractors totaled 2,543,472 acre-feet. That amount includes 28,647 acre-feet of 1996 interruptible entitlement water.

Surplus and Unscheduled Water. Surplus and unscheduled water is water in excess of that required to meet all demands for entitlement water and water to be stored in SWP reservoirs.

Column 9 shows amounts of surplus and unscheduled water delivered from 1962 through 1996. During 1993 through 1996, surplus and unscheduled water were not delivered.

Column 10 includes amounts of water classified as other water delivered in 1996, including nonproject water conveyed through SWP facilities and regulated delivery of local supply.

In 1996, a total of 251,391 acre-feet of other water was delivered.

**Feather River Diversions.** Column 11 includes amounts of water from the Feather River delivered according to agreements for water rights water. In 1996, a total of 934,997 acre-feet in this category was delivered to contractors in the Feather River area.

**Recreation Water**. Column 12 shows water conveyed for recreational use or to provide water or improve water quality for fish and wildlife. In 1996, a total of 3,907 acre-feet of SWP water was conveyed for this purpose.

**Initial Fill Water**. The quantities listed in Column 14 represent the amounts used to initially fill the aqueducts and reservoirs south of the Delta to maximum operating capacities. Initial filling began in 1962 with the filling of the South Bay Aqueduct and

was completed in 1979 when Lake Perris reached its maximum operating capacity of 127,000 acre-feet.

In 1996, 86 acre-feet were used by CCWA for the initial fill and testing for the Coastal Branch, Phase II.

**Operational Losses**. Column 15 includes the total amounts of water lost through evaporation and seepage, net storage changes in reservoirs south of the

Delta, and amounts of inflow from local drainage areas, including inflows into San Luis Canal and from the Kern River Intertie. In 1996, that amount totaled 491,550 acre-feet.

Negative values are indicated for years when withdrawals and evaporation from reservoirs south of the Delta exceed the amounts of water added to the reservoirs.

Information for this chapter was provided by the State Water Project Analysis Office.

# Chapter 11 Power Resources



Circuit breaker at Barker Slough Pumping Plant switchyard

Power Resources Chapter 11

# **Significant Events**

- In 1996, State Water Project plants consumed 5.3 billion kWh and generated 5.2 billion kWh of energy.
- The Department purchased 1.56 billion kWh of energy in 1996 at a cost of \$23.62 million. Associated costs for capacity, transmission, and dispatching services totaled \$32.83 million.
- The Department sold 4.40 billion kWh of energy in 1996 to 32 utilities and 9 power marketers for total revenues of \$62.97 million. The Department also received \$6.01 million in revenues for capacity, exchanges, and transmission arrangements.
- Mojave Siphon Powerplant started commercial operation on August 10, 1996. The powerplant has a nameplate rating of 32.4 MW and is located upstream of Silverwood Lake on the East Branch of the California Aqueduct.
- The electric utility industry in California will undergo significant restructuring changes in 1998, due to federal and State regulatory orders concerning access to wholesale and retail trans-

mission service and legislation (AB 1890), signed into law in California on September 23, 1996. The law calls for the creation of the California Independent System Operator Corporation (ISO), which will operate the transmission grid in California, and the California Power Exchange Corporation (PX), which will function as a power pool.

Starting in 1998, restructuring is expected to impact the way the Department conducts its power and transmission transactions. Although the Department can operate under its existing contracts at ISO and PX startup, the Department intends to participate in the ISO as soon as possible. The timing and extent of the Department's participation are dependent on technical, organizational, and cost issues that the Federal Energy Regulatory Commission, ISO, and PX are trying to resolve. Throughout 1996, the Department actively participated in the Western Power Exchange process in which California's Investor Owned Utilities and other participants identified issues and developed a consensus on the filing to FERC that would establish the ISO and PX.

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he SWP requires dependable, economical sources of power to deliver affordable water to long-term contractors. Responding to that need, the Department developed and administers a comprehensive power resources program. Key elements of the program include timing generation and pumping schedules strategically, purchasing power resources and transmission services, making short-term sales of power surpluses, and conducting studies of power resources for future needs.

# **Power Resources Program**

The goals of the SWP power resources program are to:

- obtain reliable, environmentally sensitive, and competitively-priced power sources and transmission services sufficient to operate the SWP;
- develop and manage power resources to minimize the cost of water deliveries to SWP contractors;
- minimize impacts on the SWP when major contractual power arrangements begin to expire in 2004:
- meet responsibilities and criteria of the Western Systems Coordinating Council; and
- conform with regulations of the California Energy Commission and the Federal Energy Regulatory Commission.

To achieve these goals, the Department constructed its own power facilities and contracted for long-term power resources with many electric utilities. In addition, the Department arranged for transmission service between SWP power resources and pumping loads and interconnected utilities. The power resources program takes advantage of SWP water storage and conveyance capacities that can allow the Department to operate SWP pumps somewhat independently of water delivery needs. This control of pumping loads and generation enables the Department to enter into advantageous agreements with other electric utilities. Those agreements complement the use of SWP generation to meet SWP power requirements.

# **Existing SWP Power Facilities**

Figure 11-1 shows the names and locations of the Department's primary power facilities.

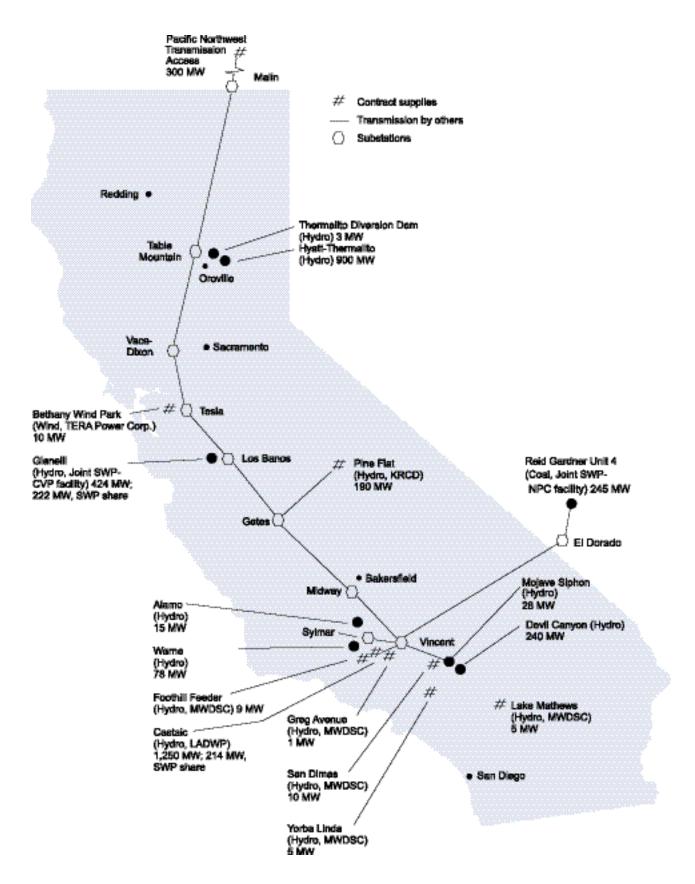
**Hydroelectric.** Economic hydroelectric generation provides the largest share of SWP power resources. The combined 900-megawatt Hyatt Pumping-Generating Plant and Thermalito Pumping-Generating Plant (Hyatt-Thermalito) generate about 2.2 billion kilowatt-hours in a median water year, while the 3 MW Thermalito Diversion Dam Powerplant adds another 24 million kWh a year.

Generation at SWP aqueduct recovery plants—Gianelli, Alamo, Devil Canyon, Warne, and Mojave Siphon—varies with the amount of water conveyed. These five plants generate about one-sixth of the total energy used by the SWP.

Coal. Since July 1983, the Department has received energy from Reid Gardner Powerplant, a coal-fired facility near Las Vegas, Nevada. Reid Gardner consists of four units. The Department owns 67.8 percent of Unit 4 (169.5 MW based on nameplate capacity of 250 MW), while Nevada Power Company owns the remainder of Unit 4 as well as all of units 1, 2, and 3.

The Department will receive up to 245 MW, beginning in September 1998, from Unit 4 (based on an upgraded generating capacity of 275 MW) subject to NPC's limited right to interrupt the Department's energy deliveries during specified periods. Whenever NPC interrupts the Department's scheduled energy, the Department receives payment based on NPC combustion turbine cost.

Figure 11-1
Names, Locations, and Generation Capability of Primary Power Facilities



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The market rates for nonfirm energy sales during most of 1996 continued to be below Reid Gardner Unit 4 energy production rates. To minimize economic losses, the Department entered into an agreement with NPC similar to the agreement for the summer of 1995. Under this agreement, from June 17, 1996, through September 13, 1996, NPC had the sole use of Unit 4 to meet high energy demands during the hot summer months. During this period, NPC used the Department's share of the coal stockpile to generate 165,600 MWh of electricity to minimize the Department's carrying charges for 1996 coal purchases required by long-term contracts. NPC would reimburse the Department for the production cost of the 165,600 MWh and would supply any coal required for Unit 4 operations beyond the 165,600 MWh. In addition, the Department received a small payment from the Department's entitlement energy made available to NPC during this period.

# **Future SWP Power Facilities**

To meet future SWP power requirements, the Department also considers and evaluates new power resources. When considering or evaluating those resources, the Department reviews SWP power requirements and analyzes the type of resource and its cost. A potential power resource may be evaluated according to the following factors:

- ability to meet anticipated power requirements for pumping;
- transmission access availability;
- anticipated water deliveries to contractors;
- · cost of the resource;
- · availability and cost of financing;
- environmental impacts and costs of mitigation; and
- operating characteristics.

The Department continued to consider several potential power resources. These included a second unit at Alamo Powerplant, a third unit at Warne Powerplant, and additional capacity at Hyatt-Thermalito.

# **Contractual Resource Arrangements**

Through joint development, exchanges, and purchases, the Department obtains a significant amount of capacity and energy for SWP operations from other utilities throughout California, the Northwest,

and the Southwest. Under these agreements, the Department can sell, buy, or exchange energy.

Some agreements allow the Department to sell, buy, and/or exchange short-term firm capacity and/or firm energy on an hourly, daily, weekly, or monthly basis. Those agreements permit more efficient use of the Department's generating resources and more efficient scheduling of energy deliveries.

Negotiations continue with various utilities in the Pacific Northwest to develop arrangements for purchases, sales, and exchanges to take advantage of the Department's 300 MW transmission capacity on the Extra-High Voltage Pacific Northwest Intertie.

To reduce SWP power costs, the Department will continue to use the EHV Intertie and negotiate with utilities and marketers in California, the Northwest, and the Southwest for purchases and sales of power.

Joint Developments. In 1966, the Department entered into a contract with the Los Angeles Department of Water and Power for the joint development of the West Branch of the California Aqueduct. The LADWP constructed and operates Castaic Powerplant, which is electrically connected to the LADWP transmission system at the Sylmar Substation.

The Department receives capacity and energy at the Sylmar Substation based on weekly water schedules through the West Branch.

Gianelli Pumping-Generating Plant is a joint SWP (222 MW) and U.S. Bureau of Reclamation (202 MW) facility.

**Power Exchanges.** The largest portion of the energy used by the SWP is provided by the 1979 Power Contract and the 1981 Capacity Exchange Agreement with Southern California Edison Company. Service began in April 1983 under the Power Contract and in April 1987 under the CEA.

According to terms of the Power Contract, the Department provides SCE with up to:

• 350 MW of capacity and approximately 40 percent of the energy from Hyatt-Thermalito;

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- 120 MW of capacity and all the energy generated by Devil Canyon Powerplant Units 1 and 2; and
- 15 MW of capacity and all the energy generated by Alamo Powerplant.

In return, the Department receives off-peak energy from SCE equal to the amount of energy provided to SCE from Hyatt-Thermalito, Devil Canyon Power-plant, and Alamo Powerplant, plus an additional amount of energy as payment for the capacity. The amount of additional energy is determined annually based on the Capacity-Energy Exchange Formula defined in the 1979 Power Contract. The formula determines the value of capacity in dollars and converts the dollar amounts into an equivalent amount of off-peak energy.

According to terms of the CEA, each year the Department must provide 412.5 million kWh of energy to SCE during on-peak periods at a maximum delivery rate of 225 MW. SCE returns approximately 110 percent of the energy the Department provides during mid-peak and off-peak periods. In addition, SCE waives 75 percent of its charges to the Department for specified firm transmission service provided to SWP pumping and generating facilities. SCE also makes an annual payment of \$900,000 to the Department.

In addition, according to terms of the 1979 Power Contract, SCE receives energy from four of the Metropolitan Water District of Southern California powerplants—Lake Mathews, Foothill Feeder, San Dimas, and Yorba Linda. In return, the Department receives off-peak energy from SCE averaging 107 percent of the total energy provided to SCE from those plants. All the energy from the fifth plant, Greg Avenue, is provided to LADWP according to a 1983 agreement between LADWP and the Department. The utility returns 98.8 percent of this energy to the Department during off-peak periods.

**Purchases.** The Department obtains a significant amount of energy through long-term and short-term purchase agreements with utilities in California, the Northwest, and the Southwest.

*Long-Term Purchases*. The Department purchases hydroelectric energy generated by other utilities. The

output of the 165 MW Pine Flat Powerplant, owned and operated by the Kings River Conservation District, supplies the SWP about 400 million kWh of energy in median water years.

The Department contracts for the energy output of five hydroelectric plants owned and operated by MWD. The total capacity of those plants is 30 MW. To use this resource efficiently, the Department included it in the exchange arrangements with SCE.

Beginning in late 1983, the Department purchased wind-generated energy from TERA Power Corporation. The energy is delivered from the Bethany Wind Park to the South Bay Pumping Plant near Tracy. Originally TERA installed 168 wind machines, with a total capacity of 9.45 MW. However, because of mechanical failures and subsequent litigation involving the developer, investors, and manufacturers, many machines have been out of service since 1987. In early 1996, the Department terminated the contract due to a contract breach by TERA Power Corporation. The Department proposes to dismantle and remove the wind park facilities.

The Department signed an agreement with Pacifi-Corp of Portland, Oregon, to purchase 100 MW of firm capacity and associated energy. That agreement became effective June 1, 1991, and will continue through 2004.

Short-Term Purchases. The Department contracted with Pacific Gas and Electric Company, SCE, and Bonneville Power Administration (a federal agency created to market energy) to purchase power when needed.

Additionally, according to terms of the 1988 Coordination Agreement between the Department and MWD, the Department may purchase surplus energy from MWD's Colorado River Aqueduct system. The Coordination Agreement provides for coordinated operation between the SWP and MWD's Colorado River Aqueduct system. It also provides for:

- monthly surplus firm energy sales to MWD;
- economy energy sales to MWD;
- surplus energy purchases from the Colorado River Aqueduct system; and

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energy exchanges between the Department and MWD.

As of December 1996, the Department also had 35 other agreements to purchase interruptible economy energy to satisfy unexpected, short-term energy shortages, and to sell surplus short-term energy.

# **Contractual Transmission Arrangements**

Although able to acquire transmission independently, the Department depends on other sources for transmission services. PG&E and SCE are the Department's primary providers of transmission service between SWP power resources and pumping loads and interconnected utilities for purchases, sales, and exchanges of power.

Under the Comprehensive Agreement with PG&E, the Department receives 1,355 MW of firm transmission service over the PG&E transmission system between SWP pump loads and power resources in Northern and Central California. The agreement allows the Department to request and receive additional firm and interruptible transmission service if needed.

To interconnect the SWP loads and resources in Southern California, the Department receives transmission service from SCE over the SCE transmission system under the SCE-DWR Power Contract and Firm Transmission Service Agreement.

In August 1967, the Department contracted for 300 MW of transmission capacity on the EHV Pacific Northwest Intertie from the California-Oregon border to the Table Mountain, Tesla, Los Banos, and Midway substations. The Department retains its entire 300 MW share of EHV capacity for access to the Pacific Northwest until 2005; 100 MW of this capacity is committed to receiving the long-term purchase of 100 MW from PacifiCorp.

In December 1984, the Department signed a Memorandum of Understanding with many public and private California utilities. As implemented in the Interim Participation Agreement and the Long-Term Participation Agreement, the Department has an option (which can be exercised during a 5-year

period beginning in January 2005) to purchase 97 MW of transmission capacity on the third 500 kV transmission line that connects California with the Pacific Northwest. The transmission line began operation March 17, 1993.

Other SWP transmission needs are currently met by contractual arrangements with California utilities.

# **Load Management**

The SWP controls the timing of its pumping load through an extensive computerized network. That control system allows the Department to minimize the cost of power it purchases by maximizing pumping during off-peak periods when power costs are lower—usually at night—and to sell power to other utilities during on-peak periods when power values are high. By taking advantage of this flexibility in scheduling SWP pumping load and generation, the Department reduces the net cost of power needed for SWP water deliveries.

Sales of Excess Power. When generation from SWP power resources exceeds requirements, the Department sells the excess power on the market. Currently, the Department has contracts with about 35 utilities and marketers for short-term purchase, sale, or exchange of power. In addition to selling firm power, the Department may sell power on a day-today or hour-to-hour basis according to the terms of its interchange agreements and of the Western System Power Pool agreement. These agreements provide the basis for making economy energy transactions, short-term capacity and energy sales or exchanges, unit commitments, and transmission service purchases. Through these contracts, the Department sells excess capacity and energy at market rates.

# **SWP Power Operation in 1996**

Tables 11-1 through 11-4 present statistical information about SWP power operation for calendar year 1996, including energy consumed and generated, energy exchanged and purchased, and power sold.

**Table 11-1** Energy Used at Pumping Plants and Powerplants in 1996, by Month (Millions of Kilowatt-Hours)

						Month							
Pumping Plants and Power Plants	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
Hyatt-Thermalito Pumping-Generating Plant													
(Pumpback and station service)	43.21	0.00	0.03	0.00	4.51	23.43	7.42	5.22	32.30	0.14	7.07	3.04	126.37
North Bay Interim Pumping Plant	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02
Cordelia Pumping Plant	0.16	0.12	0.41	0.62	0.84	0.83	0.82	0.81	1.17	0.78	0.70	0.62	7.88
Barker Slough Pumping Plant	0.15	0.10	0.35	0.56	0.92	0.97	0.98	0.84	0.73	0.44	0.32	0.27	6.63
South Bay Pumping Plant	3.08	0.62	2.07	6.45	8.18	10.76	12.15	10.27	4.60	4.07	1.97	4.42	68.64
Bottle Rock Powerplant (station service)	0.04	0.05	0.08	0.06	0.05	0.04	0.05	0.05	0.05	0.04	0.04	0.06	0.61
Del Valle Pumping Plant	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.13	0.21	0.04	0.47
Banks Pumping Plant	100.38	48.71	49.28	47.19	41.72	83.64	106.64	100.17	98.00	73.00	82.74	45.92	877.39
Gianelli Pumping-Generating Plant	67.88	5.65	2.60	3.26	8.55	12.47	19.40	13.64	43.20	33.65	69.02	27.27	306.59
Dos Amigos Pumping Plant (SWP share)	22.90	23.69	24.68	32.50	31.98	44.89	52.45	62.37	29.71	18.50	10.54	12.00	366.21
Buena Vista Pumping Plant	7.89	14.15	17.86	29.86	29.44	30.99	34.50	31.94	28.44	14.24	9.71	8.15	257.17
Teerink Pumping Plant	7.08	13.32	16.84	30.34	28.54	26.91	29.62	29.26	30.09	14.87	10.53	8.69	246.09
Chrisman Pumping Plant	15.54	30.02	37.13	67.56	61.94	57.29	63.87	63.95	67.04	32.78	23.79	19.57	540.48
Edmonston Pumping Plant	54.07	107.20	133.37	243.12	218.91	201.18	224.91	226.10	239.75	114.69	85.83	70.17	1,919.30
Alamo Powerplant (station service)	0.05	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.06	0.06	0.28
Pearblossom Pumping Plant	6.13	10.20	9.30	41.42	38.90	37.08	44.18	44.97	45.53	6.54	0.43	2.52	287.20
Mojave Powerplant (station service)	0.09	0.08	0.08	0.07	0.07	0.06	0.06	0.01	0.00	0.04	0.06	0.07	0.69
Devil Canyon Powerplant (station service)	0.16	0.18	0.20	0.05	0.01	0.06	0.02	0.00	0.00	0.21	0.19	0.18	1.26
Oso Pumping Plant	3.42	8.49	11.40	10.60	8.08	6.58	6.20	6.28	7.75	10.57	9.64	6.88	95.89
Warne Powerplant (station service)	0.11	0.08	0.07	0.07	0.09	0.09	0.12	0.13	0.08	0.04	0.03	0.11	1.02
Las Perillas Pumping Plant	0.38	0.20	0.30	0.85	1.21	1.72	1.78	1.44	0.72	0.57	0.08	0.08	9.33
Badger Hill Pumping Plant	0.96	0.49	0.78	2.34	3.28	4.70	4.90	4.02	1.97	1.51	0.17	0.15	25.27
Devil's Den Pumping Plant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.06	0.06	0.25
Bluestone Pumping Plant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.05	0.05	0.22
Polonio Pass Pumping Plant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.04	0.05	0.21
Subtotal	333.69	263.40	306.87	516.93	487.23	543.70	610.08	601.48	631.14	327.23	313.28	210.44	5,145.47
High Voltage Transmission Line Losses	8.16	9.69	9.08	12.16	13.53	13.58	17.90	14.68	16.81	18.12	13.68	15.38	162.77
Total Energy Required for SWP	341.85	273.09	315.95	529.09	500.76	557.28	627.98	616.16	647.95	345.35	326.96	225.82	5,308.24

**Table 11-2** Energy Generated and Purchased in 1996, by Month (Millions of Kilowatt-Hours)

							Month						
Sources of Energy	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
SWP Energy Sources (a													
Hyatt-Thermalito Powerplant	233.35	506.61	347.13	361.98	384.56	275.61	382.60	301.53	113.11	122.28	131.50	432.23	3,592.4
Gianelli Pumping-Generating Plant	200.00	300.01	047.10	301.30	304.30	270.01	302.00	301.33	110.11	122.20	101.00	402.20	0,002.
(SWP share)	0.65	3.92	6.45	25.87	39.44	21.77	21.61	32.35	7.91	1.78	0.00	3.22	164.
Alamo Powerplant	1.28	1.86	1.94	8.03	7.98	7.51	8.90	8.91	9.03	1.24	0.20	0.03	56.
Mojave Siphon	0.00	0.00	0.00	0.00	0.00	0.45	1.30	6.07	7.06	0.82	0.20	0.03	15.
Devil Canyon Powerplant	8.93	18.37	16.15	72.37	69.76	63.50	76.08	78.78	78.35	16.86	14.76	12.33	526
Reid Gardner Unit 4 (b	53.73	58.86	60.07	55.86	(2.04)	16.48	0.00	0.00	59.78	107.47	102.61	119.64	632
Warne Powerplant	7.32	18.00	23.37	22.41	16.68	13.71	13.08	12.51	16.68	22.72	21.65	12.92	201
Subtotal	305.27	607.62	455.11	546.52	516.38	399.03	503.57	440.14	291.92	273.17	270.72	580.37	5,189
													,
Energy Sources from Long-Term Agreements (a												40.00	
Castaic Powerplant	11.10	30.54	40.05	35.71	26.98	23.77	20.61	22.06	34.51	35.47	35.77	16.88	333
Metropolitan Water District of Southern California	7.87	5.97	7.17	16.36	16.51	12.87	16.72	19.39	17.60	12.54	9.69	9.19	151
Pine Flat Powerplant	0.60	(0.25)	48.24	86.56	141.70	121.27	130.99	78.19	21.66	1.35	(0.03)	(0.22)	630
PacifiCorp (PP&L)	44.80	45.30	50.00	43.28	50.44	59.75	62.21	61.83	62.39	63.03	46.40	29.51	618
Power Exchange Delivered to SCE	(159.18)	(271.32)	(198.83)	(273.20)	(270.33)	(236.62)	(292.26)	(262.56)	(185.49)	(120.51)	(109.97)	(231.34)	(2,611.
Power Exchange Received from SCE	304.64	259.53	340.29	406.76	317.12	405.30	547.00	533.33	583.82	486.21	448.15	530.86	5,163
Generation Replacement Energy Delivered to													
SCE - Dept./San Bernardino VMWD Agreement	0.00	0.00	0.00	(0.45)	(0.18)	(0.16)	(0.16)	(0.20)	(0.21)	(0.25)	(0.23)	(0.25)	(2.
Subtotal	209.83	69.77	286.92	315.02	282.24	386.18	485.11	452.04	534.28	477.84	429.78	354.63	4,283.
Power Exchange Delivered to APC, BPA, CVE, LPM	(1.25)	(21.75)	0.00	0.00	0.00	0.00	(20.75)	(19.86)	(6.40)	0.00	0.00	(64.40)	(134.4
Power Exchange Received from APC, BPA, CVE, LPM	0.00	0.00	23.00	4.80	0.00	0.00	29.85	21.79	7.04	59.18	0.00	0.00	145
Power System Deviations Account Transactions	0.24	0.29	0.58	(0.55)	(0.14)	(0.46)	0.24	(0.55)	0.66	(2.74)	(0.20)	(0.25)	(2.
Purchases													
Bonneville Power Administration	25.20	0.04	0.55	16.27	5.25	14.16	15.62	22.47	20.87	18.98	0.00	0.00	139
Portland General Electric Company	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.08	1.86	0.00	0.00	0.00	2
Seattle City Light	1.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1
Puget Sound Power and Light Company	3.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3
Northern California Power Agency	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0
City and County of San Francisco	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.77	0
Electric Clearing, Inc.	0.00	0.05	0.00	0.00	0.00	0.00	0.43	0.00	3.60	0.00	0.00	0.00	4
Pacific Gas and Electric Company	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	4.60	0.00	0.00	0.00	5
Los Angeles Department of Water and Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.78	0.00	0.00	0.00	0.00	C
Southern California Edison Company	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0
Nevada Power Company	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37	0.00	0.59	0.00	0.00	0
Salt River Project	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0
Subtotal	29.57	(21.31)	24.13	20.52	5.11	13.70	25.43	25.48	33.10	76.01	(0.20)	(63.88)	167
Total Resources	544.67	656.08	766.16	882.06	803.73	798.91	1,014.11	917.66	859.30	827.02	700.30	871.12	9,641
Less Energy Sales (b	(202.82)	(383.00)	(450.21)	(352.97)	(302.97)	(241.65)	(386.13)	(301.50)	(211.34)	(481.65)	(373.35)	(645.29)	(4,332.
Total Energy Provided to the SWP	341.85	273.08	315.95	529.09	500.76	557.26	627.98	616.16	647.96	345.37	326.95	225.83	5,308

a) Amounts show actual energy available for SWP use.b) The upgrade energy of 63,101 MWh from Reid Gardner Unit 4 is not included.

Table 11-3
Power, Transmission, and Other Services Purchased in 1996 and Costs of Purchases, by Area

				Capacity and Transmission		
Name of Supplier	Type of Service Purchased	Energy (kWh)	Energy Cost (Dollars)	Cost (Dollars)	Total Cost (Dollars)	
Power and Transmission Purchases						
Northwest Area						
Bonneville Power Administration	Firm and nonfirm energy	139,409,000	2,132,351		2,132,35	
Portland General Electric	Firm and nonfirm energy	2,335,000	35,509		35,509	
PacifiCorp	Firm and nonfirm energy;	648 020 000	0.020.660	24 062 206	31,002,064	
Puget Sound Power and Light Company	capacity and transmission Nonfirm energy	618,939,000 3,200,000	9,938,668 45,050	21,063,396	45,050	
Seattle City Light Company	Nonfirm energy	1,525,000	17,156		17,15	
Northern California Area						
City and County of San Francisco	Nonfirm energy	765,000	12,755		12,75	
Pacific Gas and Electric Company,	3,	,	,		, -	
Southern California Edison Company,						
and San Diego Gas and Electric Company	EHV transmission			1,500,000	1,500,000	
Kings River Conservation District	Hydroelectric energy	640,009,152	4,864,070		4,864,070	
Pacific Gas and Electric Company	Firm, nonfirm, transmission,					
	and capacity	4,600,000	87,300	6,035,995 (a	6,123,295	
Northern California Power Agency	Firm and nonfirm energy	460,000	7,980		7,980	
U.S. Bureau of Reclamation	Energy exchange	0	526,437		526,437	
Southern California Area						
Los Angeles Department of Water and Power		779,000	17,825	59,306	77,131	
Metropolitan Water District of Southern California	Hydroelectric energy	143,889,319	5,841,906		5,841,906	
Southern California Edison Company	Nonfirm energy, transmission	39,000	1,170	2,769,756 (b	2,770,926	
City of Vernon	Transmission			3,363	3,363	
Southwest Area						
Nevada Power Company	Nonfirm energy, transmission	955,000	23,675	1,396,100	1,419,775	
Salt River Project	Nonfirm energy	720,000	9,125		9,125	
Electric Clearinghouse, Inc.	Firm and nonfirm energy	4,077,000	64,101		64,101	
Subtotal		1,561,701,471	23,625,078	32,827,916	56,452,994	
Other Purchases						
Kings River Conservation District	Pine Flat operations and					
Tanigo Paren Concorvation District	maintenance				3,432,190	
	Pine Flat debt service				5,086,244	
Los Angeles Department of Water and Power	Hydro powerplant scheduling				1,150	
Nevada Power Company	Reid Gardner Unit 4 operations					
,	and maintenance, coal, diesel					
	fuel, insurance, and taxes				31,343,18	
Pacific Gas and Electric Company	Midway-Wheeler Ridge,					
	Bottle Rock transmission,					
	operations and maintenance,					
	and ownership				160,708	
	Pine Flat ownership				12,07	
	Lakeville Line operations and				92,57	
	maintenance					
	TERA operations and maintenance	•			3,59	
Southern California Edison Company	Additional facilities				1,259,927	
DI Monoray for TEDA wind forms and the second	Scheduling and dispatching				159,05	
PLM energy for TERA wind farm settlement FERC charges for Oroville, Pine Flat, and					550,000	
southern facilities					512,901	
Subtotal					42,613,600	
Total					99,066,594	
a) Incorporates credit from PG&E for Table Mountain	Tesla Line Upgrade. e Agreement.					

**Table 11-4** Energy Sold in 1996 and Revenue from Sales, by Area

Name of Purchaser	Energy Sold (kWh)	Revenue from Energy Sales (Dollars)	Revenue from Capacity, Sales, Exchanges, and Transmission Arrangements (Dollars)	Total Power Sales (Dollars)
Pacific Northwest Area				
Bonneville Power Administration	9,075,000	159,375	12,000	171,375
Portland General Electric Company	73,987,000	1,030,271	12,000	1,030,271
PacifiCorp	400,294,000	5,954,235	57,276	6,011,511
Puget Sound Power and Light Company	8,982,000	125,512	07,270	125,512
Northern California Area				
Calpine Power Service Company	34,550,000	273,650		273,650
City and County of San Francisco (a	83,570,000	1,419,943	1,683	1,421,626
Lassen Municipal Utility District	1,447,000	21,098		21,098
Modesto Irrigation District	124,567,000	3,010,513	1,812,000	4,822,513
Northern California Power Agency	156,562,000	2,035,066	185,817	2,220,883
Pacific Gas and Electric Company (b	455,724,000	7,208,684	141,193	7,349,877
City of Redding	4,020,000	38,855		38,855
Sacramento Municipal Utility District	968,480,000	12,323,843	999,000	13,322,843
City of Santa Clara	19,037,000	191,621	40,890	232,511
Turlock Irrigation District	9,737,000	121,705	•	121,705
Western Area Power Administration, Mid-Pacific	1,965,000	35,489		35,489
United States Bureau of Reclamation			126,800	126,800
Southern California Area				
City of Anaheim	23,829,000	272,792		272,792
City of Azusa	4,510,000	95,224	95,693	190,917
City of Colton (e	17,457,000	265,762	1,298	267,060
Los Angeles Department of Water and Power Metropolitan Water District of	75,626,000	644,400	633,600	1,278,000
Southern California	176,502,000	1,380,713	24,454	1,405,167
City of Riverside	173,543,000	2,167,917	828,750	2,996,667
Southern California Edison Company (c	318,736,000	4,139,645	32	4,139,677
City of Vernon	310,726,000	3,860,180	54,000	3,914,180
City of Pasadena	31,399,000	389,501		389,501
City of Burbank	4,870,000	89,218		89,218
City of Glendale	11,838,000	205,486		205,486
San Diego Gas and Electric Company	6,016,000	78,323		78,323
Southwest Area				
Arizona Power Company	210,000	2,835		2,835
Nevada Power Company	210,585,000	8,608,127	925,209	9,533,336
Salt River Project	609,290,000	5,979,468		5,979,468
Sierra Pacific Power Company	6,210,000	45,790		45,790
Power Brokers	40.400.000	005.044	224	000 100
Electric Clearing House, Incorporated	12,168,000	205,614	3,814	209,428
Enron Power Marketing, Incorporated (d	38,192,000	396,042	805	396,847
KOCH Power Service, Incorporated	400,000	4,800		4,800
Aquila Power Company	1,600,000	19,200		19,200
Sonat Power Marketing	200,000	3,200		3,200
KN Marketing, Incorporated	800,000	9,600	7	9,600
Vital Gas and Electric	80,000	1,400	70,530	71,930
Destec	4,325,000	53,954		53,954
Citizens Lehman Power Sales	4,870,000	101,235		101,235
Grand Total	4,395,979,000		6,014,844	

a) Includes \$1,683 in late payment penalties.
b) Includes \$222,321 in emergency services and \$6,365 in dispatching services.
c) Includes \$303 in late payment penalties.
d) Includes \$400 for scheduling and dispatching, and \$405 in late payment penalties.
e) Includes \$25 in late payment penalties.

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# **Energy Consumed**

In 1996, energy used at the 25 SWP pumping and generating plants totaled 5.3 billion kWh. Table 11-1 shows the amount of energy used each month at SWP pumping and generating plants to operate the SWP.

According to terms and conditions of various water conveyance contracts and exchange agreements, some water belonging to the Central Valley Project is pumped through the SWP Banks Pumping Plant and through the CVP-SWP joint-use facilities at Dos Amigos Pumping Plant and Gianelli Pumping-Generating Plant. USBR furnishes the energy for pumping this water.

# **Energy Generated**

Table 11-2 shows amounts of energy generated at SWP facilities in 1996, as well as energy purchased for SWP operations.

**Hydroelectric and Coal.** The Hyatt-Thermalito power complex in Oroville produces a large amount of SWP energy. In 1996, Hyatt-Thermalito generated 3.6 billion kWh of energy.

Energy generated at SWP recovery plants—Alamo, Devil Canyon, Gianelli, Mojave Siphon, and Warne—totaled 965 million kWh in 1996, about 50 percent more than the amount generated in 1995.

In 1996, the SWP share of energy generated at the coal-fired Reid Gardner Unit 4 totaled 632 million kWh.

# **Contractual Resource Arrangements and Cost**

SWP power operations rely on contractual arrangements as well as SWP facilities. Those contractual arrangements include joint development projects, energy exchanges, purchases, and transmission.

Joint Development. Through the West Branch Cooperative Development Agreement with LADWP, the Department receives energy based on the amount of water scheduled through the West Branch. In 1996, LADWP provided 333 million kWh for the Department's share of energy generated at Castaic Powerplant.

In 1996, the Gianelli Pumping-Generating Plant used 307 million kWh and generated 165 million kWh.

Energy Exchanges. The Department has two agreements with SCE to purchase and/or exchange power. According to terms of the 1979 Power Contract (in effect since April 1983), part of the output of the Hyatt-Thermalito complex and all output of Alamo and Devil Canyon powerplants are delivered to SCE. According to the terms of the CEA, which has been in effect since April 1987, the Department delivers energy to SCE each year during on-peak periods and, in return, receives a greater amount of off-peak energy as well as transmission considerations. Those two exchange agreements resulted in a net of about 2.55 billion kWh to the SWP in 1996.

**Purchases and Costs.** In 1996, the Department purchased 1.56 billion kWh of energy at a cost of \$23.62 million. Associated costs for capacity, transmission, and dispatching services totaled \$32.83 million. Other SWP power costs, including those for debt service at Pine Flat Powerplant and costs at Reid Gardner Unit 4, totaled \$42.61 million. Table 11-3 shows amounts of power, transmission, and other services purchased in 1996 and costs of purchases.

Long-Term Purchases. According to terms of the Kings River Conservation District contract, the Department receives the total output of the 165 MW Pine Flat Powerplant. The plant provided over 640 million kWh to the SWP in 1996 at a total cost of \$4.9 million.

The Department also has a contract with PacifiCorp, from which the Department purchased 619 million kWh in 1996.

Under the MWD Small Hydro Contract, the Department received 144 million kWh of energy in 1996 from five small hydroelectric powerplants on the MWD system at a cost of \$5.8 million.

Short-Term Purchases. Existing resources and long-term power and transmission contracts ensure that the SWP has enough power to meet long-term needs. Periodically, when SWP power requirements exceed resources during daily operations, short-term purchases meet the difference.

Chapter 11 Power Resources

In 1996, the SWP purchased short-term energy from 12 utilities and marketers. The short-term energy purchases totaled 168 million kWh (Table 11-2).

**Transmission Arrangements.** SCE waives 75 percent of its charges to the Department for specified firm transmission service provided to SWP pumping and generating facilities. In 1996, the savings to the Department from SCE was \$6.88 million.

# **Sales of Excess Power**

In 1996, the Department sold 4.40 billion kWh of energy to 32 utilities and 9 power marketers for total revenues of \$62.97 million. The Department also received \$6.01 million in revenues for capacity, exchanges, and transmission arrangements. See Table 11-4 for information about energy and other services sold and revenue received.

# **Forecasting Power Operations**

Each year, after reviewing the water contractors' water delivery requests and the construction schedule for future facilities, the Department forecasts SWP power requirements through 2035. Although the Department forecasts power requirements up to 2035, it pays particular attention to forecasts through 2004, the year major power contracts expire.

Actual SWP power requirements may vary significantly from the amounts forecast. Those variations are due to the amount of water available and delivered in a given year. For example, dry conditions in

Northern California could result in a reduction of the amount of water available for delivery. If full deliveries cannot be made, less power will be used than was originally forecast. Power requirements could also decrease during a wet year because of the availability of water in the San Joaquin Valley or Southern California.

Conversely, power requirements could exceed the amount originally forecast if actual water deliveries are greater than the amounts estimated. For example, if additional pumping is needed to refill reservoirs south of the Delta after an unexpected dry year, more power will be used than was initially forecast.

### Criteria

The Department bases its forecast of electric power primarily on SWP pumping power requirements to deliver water for SWP contractors' short-term and long-term water delivery requests. Requirements are based on the amount of energy necessary to deliver entitlement water requested by water contractors, including losses in reservoirs and aqueducts; recreation water; and water to replace storage in reservoirs south of the Delta.

Short-term power requirements, based on the actual water supply and reservoir storage levels, are determined for the current and two ensuing years of operation. Long-term operational studies for the remaining years are based on median-year water supply conditions and optimal reservoir storage levels.

Information for this chapter was provided by the State Water Project Analysis Office.

# Chapter 12 Facilities Maintenance



Repairing the California Aqueduct

Facilities Maintenance Chapter 12

# **Significant Events**

- The Santa Ana Pipeline inspection and repair was completed January 6, 1996. The pipeline was then flushed and put back in service. Water deliveries resumed to the Box Springs turnout and to Lake Perris.
- Clifton Court operations stopped for 36 hours September 10 and 11 to apply herbicide to control weed growth.
- On October 24, Pools 52 through 55 were taken out of service for scheduled repairs to the canal
- lining between mile markers 343 and 345. Lining repairs on Pools 52, 53, and 55 of the East Branch were completed December 16 and the pools returned to service during the week of December 17.
- Construction at the Vaquero Recreation Area, requiring the lowering of Pyramid Lake, was completed. Pyramid Lake was released from restriction on December 8 and refill began December 9. Refill was completed December 15.

Chapter 12 Facilities Maintenance

he Department of Water Resources, through the Division of Operations and Maintenance, monitors all State Water Project facilities to ensure safety and reliability. Operations and Maintenance staff at Department headquarters biannually inspect and report on all facilities to document any deficiencies. Those inspections allow facilities to be maintained at the highest level possible with available staff and resources.

The Department conducts several types of inspections of SWP facilities. Operations and Maintenance staff collect and evaluate data about the performance of each facility. Engineers from the Division of Safety of Dams inspect jurisdictional SWP dams annually to ensure that each dam is satisfactory and safe. The engineers evaluate proposed modifications to existing dams as well as the design and construction of new jurisdictional dams.

The Federal Energy Regulatory Commission also inspects all licensed SWP facilities annually. These inspections include a review of significant events, instrumentation data, and the visual appearance of each dam, penstock, power plant, etc.

Finally, the Department is required to contract periodically with independent consultants to review the safety of SWP dams and power facilities except those in the San Luis Field Division and the Pearblossom Spill Basin. The four dams in the San Luis Field Division (San Luis, O'Neill Forebay, Los Banos Detention, and Little Panoche) are joint use with the U.S. Bureau of Reclamation. They are not under the jurisdiction of the Division of Safety of Dams. Pearblossom Spill Basin Dam is in place for use only during misoperation at the Pearblossom Pumping Plant. The spill basin has not been used.

# Inspecting and Maintaining Project Dams

Between July 1, 1996, and June 30, 1997, Department personnel inspected and performed routine and scheduled maintenance on SWP dams. Division of Safety of Dams engineers also inspect SWP dams annually with O&M personnel. Some inspections were conducted under FERC and *California Water* 

*Code* requirements to evaluate SWP dam facilities every 5 years. Other activities were performed by the Division of Operations and Maintenance as routine inspections.

# **Oroville-Thermalito Area**

The Department continued follow-up studies from the 5-year review of 1989. The FERC independent consulting team expressed concern about broken instrumentation tubing in Oroville Dam and made specific recommendations regarding its repair. A Division of Design and Construction investigation led to the 1992 memorandum report. The report recommended that hydraulic tubing be grouted at specific locations within the core block. Work was completed in 1996. Division of Engineering (formerly Division of Design and Construction) prepared a final report. Division of Safety of Dams reviewed the report and found the objectives of the grouting were satisfactorily completed.

# **Routine Inspections**

Routine inspections were conducted at Frenchman, Antelope, and Grizzly Valley dams in the Upper Feather River Area; at Oroville, Bidwell Bar, Lime Saddle, Thermalito Diversion, Thermalito Forebay, Thermalito Afterbay, and Feather River Hatchery dams in the Oroville Area; at Clifton Court, Bethany, Patterson, and Del Valle dams in the Delta Field Division; at Sisk, O'Neill, Los Banos Detention, and Little Panoche detention dams in the San Luis Field Division (O&M and USBR); and at Cedar Springs, Pyramid, Castaic, and Perris dams in the Southern Field Division.

# **Independent Reviews**

The Department periodically employs consultants to independently review and assess safety conditions of Facilities Maintenance Chapter 12

SWP dams, powerplants, and other facilities. Consultants are selected based on their geotechnical, structural, and civil engineering knowledge and background as well as their expertise in evaluating the performance of dams.

In preparing their reports, consultants inspect facilities and review surveillance data and other information prepared by Department staff. The Department then prepares action plans based on the consultants' recommendations.

Consultants performed the following reviews for the Department.

**FERC Reviews.** To comply with the Federal Energy Regulatory Commission's regulations, consultants review FERC-licensed dams and power generation facilities owned by the Department. These reviews, which may be conducted by one or more consultants, are scheduled every 5 years.

California Water Code Reviews. To comply with the California Water Code and the California Code of Regulations, the Department is required to retain a consulting board to review:

- the adequacy of the design of a dam or reservoir the Department proposes to construct; and
- the safety of the completed construction, including the terms and conditions for the Certificate of Approval.

These provisions also require the Department to retain a review board at least once every 5 years to review the operational performance of Department-owned dams.

In September 1996, a Director's 5-year Independent Consulting Board conducted a Performance Review of Antelope, Frenchman, and Grizzly Valley dams. The Board expressed concern regarding a fault that passes directly beneath Frenchman Dam outlet works. The Division of Engineering is conducting a study to determine the full extent of the fault and the effects a fault displacement would have on outlet works. This report will be presented to the next 5-year board in 2001.

# **Maintaining Other Project Facilities**

The Department continually monitors all SWP facilities and performs repairs and modifications as necessary to ensure safe, reliable water delivery. Headquarters staff conduct biannual inspections of project facilities and complete inspection reports for each field division. The Oroville and San Joaquin field divisions are inspected in the spring and summer of even-numbered years and the Delta, San Luis, and Southern field divisions are inspected in odd-numbered years. Each report lists action items to ensure that follow-up inspections and reports are made.

In fiscal year 1996-97, O&M staff provided coordination with Division of Engineering on projects reported in Chapter 13 as well as short- and long-term actions at Arroyo Pasajero watershed.

# Arroyo Pasajero Program

The Arroyo Pasajero and its tributaries drain approximately 530 square miles of the Coast Mountains west of the California Aqueduct near Coalinga in Fresno County. The Arroyo Pasajero's downstream juncture with the California Aqueduct, also known as the San Luis Canal between San Luis Reservoir and Kettleman City, poses a particularly difficult operational and maintenance problem for the SWP. During periods of heavy rainfall, high flows in the Arroyo Pasajero and its tributaries transport heavy sediment loads eroded from the mountains. Over many eons. sediment transported by Arroyo floods formed a 450square-mile alluvial fan extending from its apex at the eastern margin of Pleasant Valley (Anticline Ridge) to the San Joaquin Valley trough. The California Aqueduct traverses the Arroyo's alluvial fan and forms a barrier to Arroyo flood flows. Flood control facilities at the Aqueduct include a retention basin designed to store storm runoff and sediment upstream of the Aqueduct and two facilities to release floodwater from the basin. The volumes of runoff and sediment deposition are much greater than estimated during the original design of the retention basin in the mid-1960s.

**Interim Programs.** The U.S. Bureau of Reclamation designed and constructed the San Luis Canal segment of the California Aqueduct. USBR and the

Chapter 12 Facilities Maintenance

Department share costs of operating and maintaining the facility. Since the floods of 1969, USBR and the Department have worked to minimize the effects of heavy flooding. In 1980, asbestos was discovered in runoff from the Arroyo Pasajero. This discovery, in conjunction with the high cost of removing sediment from the Aqueduct, led the Department to adjust operating procedures to minimize runoff entering the Aqueduct.

**Long-Term Programs.** In 1990, the Department sought the assistance of the U.S. Army Corps of Engineers to identify viable long-term solutions to the Arroyo Pasajero flooding and sediment problems. In 1992, the Corps issued the Arroyo Pasajero Reconnaissance Report, which demonstrated a federal interest in flood control at Arroyo Pasajero. The flood control feasibility study, which was initiated in 1994 as a joint effort with the Department, provides a more rigorous analysis of the flooding and sedimentation problems and evaluates potential solutions in greater detail. Under the Corps process, if this report finds a federal interest, a National Economic Development plan that maximizes flood control net benefits will be identified and a Locally Preferred plan may be identified also.

The study will run through 1998 with a projected cost of \$7.2 million. The Department, as local sponsor, is committed to 50 percent of the total study cost with one-half of this commitment met by providing in-kind services for the study. Under the Department's agreement with USBR for the Joint-Use Facilities of the San Luis Unit, USBR is paying 45 percent of the Department's study cost.

The Department's activities as local sponsor includes obtaining aerial photography and producing topographic mapping covering more than 250 square miles, coordinating with the Corps on public involvement, completing a hydrologic analysis of the watershed, developing a hydrologic model, developing a sediment transport model in coordination with the

Corps and Northwest Hydraulic Consultants, evaluating alternative flood conveyance facilities east of the Aqueduct, defining the specific parameters governing the alternatives to be investigated, and participating in plan formulation.

In June 1997, a federal interest was established and the NED plan was identified as an enlarged westside ponding basin. A dam and reservoir at Pasajero Gap was identified also as a potential Locally Preferred plan. Both plans are being refined and carried forward in the study until such time as the Local Sponsor selects the plan it wishes the Corps to pursue.

Following the March 1995 floods at Arroyo Pasajero, the California Water Commission requested that the Department convene an Arroyo Pasajero Multi-Agency Forum. The Department proceeded to establish a forum, comprised of concerned public officials and agency representatives as well as members of the public, to provide interested parties early access to study findings and an opportunity to participate in the formulation of project alternatives. Through June 1997, the forum met four times and generated a great deal of interest that focused local concerns.

Cantua Creek Stream Group. The Department continued a reconnaissance-level study of flood control measures for Martinez, Domengine, Salt, and Cantua creeks; Arroyo Hondo; Arroyo Ciervo; and Tumey Gulch. The alternatives under evaluation include: upstream dams, expanded west-side ponding basins, east-side ponding basins, channel improvements, and conveyance of floodwaters east of the Aqueduct to Fresno Slough. A draft reconnaissance report is scheduled for completion in 1997.

# **Repairs and Modifications**

Table 12-1 presents information, arranged chronologically, about significant maintenance activities at SWP pumping and power plants. The table includes information about incidents resulting in outages exceeding 14 days.

Facilities Maintenance Chapter 12

Table 12-1
Outages for Maintenance and Repair of Facilities in 1996, by Month

Month	Facility	Description
January	South Bay Pumping Plant	Unit 8 out of service from January 2 to June 14 for motor replacement.
	Pine Flat Powerplant	Unit 2 out of service from January 2 to January 31 for annual maintenance.
	Devil Canyon Powerplant	Unit 3 out of service from January 2 to February 1 for annual maintenance.
	Banks Delta Pumping Plant	Unit 7 out of service from January 9 to February 15 for discharge valve upstream seal O-ring replacement.
	Las Perillas Pumping Plant	Unit 3 out of service from January 10 to February 8 for annual maintenance.
	Warne Power Plant	Unit 2 out of service from January 10 to February 10 to inspect the unit stator. Transformer KY2 out of service from January 10 to February 10 to repair oil leak.
	Hyatt Powerplant	Unit 6 out of service from January 18 to March 12 for annual maintenance.
	Dos Amigos Pumping Plant	Unit 6 out of service from January 26 to May 22 for rotor repair and discharge resistor replacement.
	South Bay Pumping Plant	Unit 2 out of service from January 31 to April 2 to rewire motor exciter.
	South Bay Pumping Plant	Unit 3 out of service from January 31 to May 3 to rewire motor exciter.
February	Edmonston Pumping Plant	Unit 10 out of service from February 2 to February 23 to replace the motor operated disconnect switch 1013 broken linkage.
	Thermalito Pumping-Generating Plant	Unit 3 out of service from February 5 to June 7 for annual maintenance and stator rewedging.
	Pearblossom Pumping Plant	Unit 3 out of service from February 8 to July 28 to replace cracked amortisseur bar.
	Pearblossom Pumping Plant	Unit 1 out of service from February 8 for stator neutral repair.
	Las Perillas Pumping Plant	Unit 6 out of service from February 8 to April 5 for annual mechanical maintenance.
	Teerink Pumping Plant	Unit 6 out of service from February 8 for impeller replacement and discharge valve maintenance.
	Gianelli Pumping-Generating Plant	Unit 3 out of service from February 13 to April 14 for biennial maintenance.
	Gianelli Pumping-Generating Plant	Unit 4 out of service from February 13 to April 14 for unit overhaul and headgate #2 repair.
	Chrisman Pumping Plant	Units 6 and 7 and discharge valve #3 out of service from February 26 to April 3 for inspection of Unit 7 stay vanes and discharge valve upper seal O-ring and to replace Unit 6 hot water bypass valve.
March	Dos Amigos Pumping Plant	Unit 2 out of service from March 8 to April 25 for biennial maintenance.
	Hyatt Powerplant	Unit 5 out of service from March 18 to April 22 for annual maintenance.
	Dos Amigos Pumping Plant	Unit 4 out of service from March 27 to April 30 to install solid state voltage regulator and hub shaft measurement.
April	South Bay Pumping Plant	Unit 2 out of service from April 2 to May 3 for overcurrent investigation.
	South Bay Pumping Plant	Unit 4 out of service from April 2 to May 29 for overcurrent investigation.

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Table 12-1
Outages for Maintenance and Repair of Facilities in 1996, by Month

Month	Facility	Description
	Las Perillas Pumping Plant	Unit 4 out of service from April 5 to May 3 for annual maintenance.
	Oso Pumping Plant	Unit 6 out of service from April 13 to investigate field ground.
	Hyatt Powerplant	Unit 2 out of service from April 25 to May 17 for annual maintenance.
Мау	Pearblossom Pumping Plant	Unit 9 out of service from May 8 for discharge valve wearing ring repair.
	Edmonston Pumping Plant	Unit 14 out of service from May 8 to September 13 for scavenging breaker parts and excessive silt.
	Dos Amigos Pumping Plant	Unit 3 out of service from May 28 for hub/shaft fit and rotor rim repair.
June	Pearblossom Pumping Plant	Unit 7 out of service from June 1 to December 31 for motor field ground removal.
	Banks Delta Pumping Plant	Unit 6 out of service from June 6 for impeller removal and discharge valve removal.
	South Bay Pumping Plant	Unit 7 out of service from June 13 to June 27 for motor replacement.
	Edmonston Pumping Plant	Unit 2 out of service from June 17 to October 22 for thrust bearing replacement.
	Oso Pumping Plant	Unit 4 out of service from June 26 to August 15 for motor rotor repair.
July	Oso Pumping Plant	Unit 3 out of service from July 1 for amortisseur repair.
	Banks Delta Pumping Plant	Unit 10 out of service from July 13 to August 30 for annual maintenance.
	Buena Vista Pumping Plant	Unit 9 out of service from July 16 for annual maintenance and impeller replacement.
	Del Valle Pumping Plant	Plant out of service from July 25 to August 26 for plant and pipeline inspection.
August	Buena Vista Pumping Plant	Units 7-10 and transformer KYB out of service from August 10 to September to replace transformer bushing.
	Oso Pumping Plant	Unit 3 out of service from August 16 for armortisseur winding repair.
	Mojave Siphon Powerplant	Unit 1 out of service from August 27 to October 21 for seal ring repair.
	Gianelli Pumping-Generating Plant	Unit 1 out of service from August 29 to September 15 for biennial maintenance.
September	South Bay Pumping Plant	Units 6-9 out of service from September 9 for Unit 7 pump replacement and replacement bus and switchgear.
	Hyatt Powerplant	Unit 1-3 out of service from September to December 14 for annual maintenance and turbine cutoff valve maintenance.
	Warne Powerplant	Unit 2 out of service from September 16 to November 16 for annual inspection and nozzle #5 water seal repair.
	Pine Flat Powerplant	Unit 1 out of service from September 17 to November 6 for annual maintenance.
	South Bay Pumping Plant	Unit 5 out of service from September 24 to December 31 for 4.16 KV bus and switchgear.
	South Bay Pumping Plant	Drain line #2 out of service from September 30 for installation of turbine shutoff valve.
October	Gianelli Pumping-Generating Plant	Unit 5 out of service from October 7 to November 21 for annual and penstock inspection and stay vane coating.

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Table 12-1
Outages for Maintenance and Repair of Facilities in 1996, by Month

Month	Facility	Description
	Gianelli Pumping-Generating Plant	Unit 6 out of service from October 7 to November 7 for penstock inspection.
	Gianelli Pumping-Generating Plant	Unit 6 out of service from October 7 to November 7 for penstock inspection.
	California Aqueduct East Branch	Pools 52 through 55 taken out of service to repair canal lining.
	Badger Hill Pumping Plant	Unit 3 out of service from October 28 to December 31 for annual maintenance.
	Mojave Siphon Powerplant	Units 1 and 2 out of service from October 30 for runner inspection.
November	Pine Flat Powerplant	Pine Flat Switchyard out of service from November 4 to December 13 for Doble testing.
	Pine Flat Powerplant	Unit 2 out of service from November 9 for annual maintenance.
	Pearblossom Pumping Plant	Units 4-6 out of service from November 12 to December 23 for sealing hydraulic oil leak.
	Dos Amigos Pumping Plant	Unit 4 out of service from November 18 for solid state voltage regulator installation.
	Edmonston Pumping Plant	Units 2-14 (even numbered units) out of service from November 25 to December 23 for tunnel outage.
	Edmonston Pumping Plant	Pipeline #2 out of service from November 25 to December 23 for blow-off valve replacement and Unit 14 downstream seal inspection.
December	Hyatt Powerplant	Unit 6 out of service from December 2 for annual maintenance and stator rewedging.
	Alamo Powerplant	Unit 1 out of service from December 9 for annual maintenance and blade control head seal replacement.
	Badger Hill Pumping Plant	Unit 1 out of service from December 10 for annual maintenance.
	Devil Canyon Powerplant	Units 1 and 2 out of service from December 10 to December 27 for east bus annual maintenance.
	Buena Vista Pumping Plant	Unit 4 out of service from December 17 for backfill valve maintenance.
	Pearblossom Pumping Plant	Unit 3 out of service from December 23 for armortisseur bar replacement.
	Pearblossom Pumping Plant	Unit 6 out of service from December 23 for pumpcase anode repair.
	Chrisman Pumping Plant	Unit 6 out of service from December 29 for transformer KYC "C" phase lighting counter replacement.

Information for this chapter was provided by the Division of Operations and Maintenance and the Division of Safety of Dams.

# Chapter 13 Engineering and Right of Way



Terror Eyes—to prevent swallows from nesting under the bridge during bridge maintenance

# **Significant Events**

- Between July 1, 1996, and June 30, 1997, the Division of Engineering worked on 34 design projects that were in progress or completed. An additional 68 construction contracts were in progress or completed.
- On August 20, San Bernardino Valley Municipal Water District and San Gorgonio Pass Water Agency signed an agreement to participate in the East Branch Extension. The Department will proceed with the final design and construction of the Phase I facilities.
- Work began on recoating the Enterprise Bridge, the first complete recoating since the bridge opened in 1968. The work was funded in part by federal funds.
- Canal repairs at California Aqueduct mileposts 134.98 and 157.40 for damage caused by the heavy rains in the winter of 1994-95 were completed. The repair work, conducted for the most part underwater, tested a new technology for placing new concrete canal lining by placing preformed concrete liners in the canal and filling them with concrete slurry.
- The trashrack access bridge at Gianelli Pumping-Generating Plant was retrofitted to increase the stability of the bridge during an earthquake.

- All major facilities of the Coastal Branch Phase II project will be completed by July 1997, to begin water delivery.
- Construction of a blast-paint facility at the Edmonston Pumping Plant was completed.
- Connection of the new intake structure to the San Bernardino Tunnel was completed during the outage and drawdown of Silverwood Lake, which began in November 1996. The new intake has been in operation since March 1997. Testing of gate seals and replacement of the intake gate operator is scheduled for December 1997.
- An additional 3,400+ acres were purchased on Sherman Island. This brings the Department's ownership to 9,183 acres of the 10,000-acre island.
- Two hundred eighty-one acquisitions of the 290 parcels are now completed for the Coastal Branch, Phase II Project. Of the remaining nine acquisitions, two are in eminent domain proceedings, three are awaiting restoration of construction impacts, and the remainder involve lengthy processing time by Caltrans, Union Pacific Railroad, and the Military and Air Force departments of the federal government.

onstruction of the initial facilities of the State Water Project began in 1957 with the relocation of the Western Pacific Railroad yards and Highway 70 near Oroville. In 1963, work began on the California Aqueduct; by 1968, the SWP delivered water to long-term contractors in the San Joaquin Valley. The SWP delivered water to Lake Perris, its southernmost point, with the 1973 completion of the initial SWP facilities.

From the early 1970s to the late 1980s, design and construction activities centered on building power plants and adding pumping units and turbine-generators deferred from the initial construction of the SWP; enlarging or extending aqueduct reaches; and providing facilities to ensure water quality in the Delta. In the 1990s, design and construction activities have focused on repairing and replacing components of existing facilities, constructing Phase II of the Coastal Branch to deliver water to San Luis Obispo and Santa Barbara counties, and extending the SWP to the San Gorgonio Pass service area.

# **Division of Engineering Activities**

From July 1996 through June 1997, the Division of Engineering worked on 34 design projects. Table 13-1 lists those projects along with expected or actual completion dates. In addition to designing those projects, staff conducted deficiency studies of dams, canal embankments, and other SWP facilities during fiscal year 1996-97, including Oroville, Feather River Fish Barrier, Thermalito Afterbay, Del Valle, Cedar Springs, Castaic, and Pyramid dams; Peace Valley Pipeline; and Lower Quail Canal. The investigations helped the Department develop contracts to construct remedial seepage control filters at Lower Quail Canal embankment and perform seepage repair to arrest and prevent subsurface erosion along Peace Valley Pipeline. The Department also conducted instrumentation conduit grouting at Oroville Dam.

Sixty-eight construction projects were in progress or completed from July 1996 through June 1997. Those projects are listed in Table 13-2. The table also shows project costs, dates contractors received the Notice to Begin Work, and the expected or actual contract acceptance dates. Resolution of contract

claims may extend the actual contract close out beyond the acceptance date. Costs shown in Table 13-2 are actual costs of completed work or estimated costs of construction in progress.

Tables 13-1 and 13-2 are organized geographically according to construction divisions. Within each division, facilities where design or construction activities occurred are listed alphabetically. Activities at each facility are listed chronologically according to the date work began.

# **Oroville Division**

Lime Saddle/Tent and RV Campsites. Division of Engineering staff started preliminary investigation of the site in July 1996. Final design began in December 1996. In April 1997, during a staff review of environmental issues and the sewer system, the suitability for the site came into question. Subsequently, the Division of Operations and Maintenance put the project on hold pending evaluation of new sites and discussions with FERC and the Oroville Recreation Area Committee.

Thermalito Afterbay Dam. Staff performed an evaluation to establish monitoring and operation criteria to ensure that maximum allowable foundation pore pressures are not exceeded. This evaluation was recommended by the 1989 and 1995 FERC Safety Inspection reports. A memorandum report summarized this evaluation in December 1996.

**Feather River Fish Hatchery.** Work to expand the fish hatchery and make Americans with Disabilities Act modifications began in April 1996. The hatchery expansion will include 620 feet of new rearing ponds, a hatchery building, a new ultraviolet system, bird netting, and paving. The ADA modifications at

the hatchery and the Oroville Area Control Center include restriping parking stalls, new concrete ramps and curbs at building entrances and viewing areas, installing handicap accessible hardware on building doors, restroom modifications, painting, new carpeting, and repairing a water-damaged ceiling at the Area Control Center.

Table 13-1
Design Activities, July 1996 through June 1997, by Division

Construction Division and Facility	Construction Contract	Date Design Began	Design Completion Date
Sacramento	Jibboom Street site grading	July 1996	March 1997
Oroville Division			
Feather River Fish Hatchery and Powerplant	ADA modifications and fish hatchery expansion	April 1996	December 1997
Hyatt Powerplant	Turbine refurbishment	May 1997	September 1998
Hyatt Powerplant	Governor replacement	May 1997	October 1998
O&M Center	Remove and replace storage tanks	April 1996	April 1997
Thermalito Afterbay Dam	Allowable pore pressure study	January 1995	December 1996
Thermalito Powerplant	Furnish automatic voltage regulators	June 1997	February 1998
Delta Division			
Banks Pumping Plant	Furnish bulkhead gates	January 1997	June 1997
O&M Center	Remove storage tanks	April 1996	April 1997
Sherman Island	Horsehoe Bend fish screen	November 1996	May 1997
South Bay Aqueduct	Report: cross drainage flood flows and cross drainage facilities	January 1997	April 1997
South San Joaquin Division			
Buena Vista Pumping Plant	Report: transformer oil spill containment	April 1996	November 1996
Chrisman Pumping Plant	Report: transformer oil spill containment	April 1996	November 1996
Teerink Pumping Plant	Report: transformer oil spill containment	April 1996	November 1996
Teerink Pumping Plant	Furnish stator coils	September 1996	August 1997
San Luis Division			
Arroyo Pasajero	Report: Arroyo Pasajero 100-year flood, San Luis canal breach	August 1996	September 1997
Dos Amigos Pumping Plant	Metal warehouse structure	November 1995	August 1996
Gianelli Pumping-Generating Plant	Seismic retrofit, access bridge	November 1994	June 1996
Gianelli Pumping-Generating Plant	Report: transformer oil spill containment	February 1997	June 1997
O&M Center	Metal warehouse structure	November 1995	August 1996
O&M Center	Remove storage tanks	April 1996	April 1997
Tehachapi Division			
Edmonston Pumping Plant	Field installation, remote terminal units	July 1994	December 1996
Edmonston Pumping Plant	Replace 4 pumps	February 1996	June 1998

Table 13-1
Design Activities, July 1996 through June 1997, by Division

Construction Division and Facility	Construction Contract	Date Design Began	Design Completion Date
Edmonston Pumping Plant	Replace 15 kV circuit breakers	March 1996	January 1997
Mojave Division			
Cedar Springs Dam	Sediment mitigation evaluation	January 1994	December 1996
Cedar Springs Dam	OP-29 high pore pressure evaluation	January 1995	December 1997
Mojave Siphon Powerplant	Valve vaults	December 1996	July 1997
Santa Ana Division			
Crafton Hills Reservoir	East Branch Extension	May 1997	October 1998
Greenspot, Crafton Hills, and Cherry Valley Pump Stations	East Branch Extension	May 1997	February 1998
Pipeline Reach 1	East Branch Extension	April 1997	January 1998
Pipeline Reach 2	East Branch Extension	June 1997	December 1997
Pipeline Reach 3	East Branch Extension	May 1997	March 1998
West Branch			
Oso Pumping Plant	Add 20-ton trolley	February 1996	June 1997
Pyramid Dam	Concrete deterioration investigation	July 1995	December 1996

Table 13-2 Construction Activities, July 1996 through June 1997, by Division

Construction Division and Facility	Construction Contract (Specification Number)	(NTBW) Starting Date	Acceptance Date (Expected or Actual)	Contract Costs (Thousands of dollars)
Oroville Division				
Enterprise Bridge	Recoat bridge (96-31)	February 1997	November 1997	868
Lake Oroville	Construct floating campsites (96-03)	April 1996	February 1997	1,018
North Thermalito Forebay	Construct comfort station and sewer pipeline (96-21)	October 1996	July 1997	475
Delta Facilities				
Miscellaneous	Construct temporary rock barriers—1996 and 1997: Middle River, Old River, and Grant Line Canal (96-02)	April 1996	December 1997	2,336
Suisun Marsh Facilities				
Salinity Control Gates	Repair settlement/seepage (96-12)	July 1996	October 1996	185
North San Joaquin Division	n			
Delta Operations and Maintenance Center	Construct building addition and modify electrical (95-31)	January 1996	July 1997	550

Table 13-2 Construction Activities, July 1996 through June 1997, by Division

Construction Division and Facility	Construction Contract (Specification Number)	(NTBW) Starting Date	Acceptance Date (Expected or Actual)	Contract Costs (Thousands of dollars)
Banks Pumping Plant	Furnish spare coils (94-24)	November 1994	December 1997	470
Miscellaneous Activities	Slurry Seal and Seal Coat Roads (96-07)	July 1996	November 1996	183
South Bay Aqueduct				
Del Valle Dam	Remediate waste area (96-10)	July 1996	August 1996	107
San Luis Division				
Aqueduct	Repair Canal, mileposts 134.98 and 157.40 (96-30)	January 1997	April 1997	415
Dos Amigos Pumping Plant	Furnish automatic voltage regulator units— Unit Nos. 1 through 6 (95-04)	June 1995	July 1997	406
	Construct oil spill containment for power transformers (96-11)	August 1996	December 1996	78
Gianelli Pumping- Generating Plant	Retrofit of trashrack structure access bridge (96-17)	October 1996	June 1997	675
Dos Amigos Pumping Plant and Gianelli Pump- ing-Generating Plant	Construct storage buildings (96-27)	January 1997	July 1997	446
Coastal Branch				
Cuesta Tunnel	Modify Cuesta Tunnel (94-10)	June 1994	November 1996	5,238
Las Perillas and Badger Hill Pumping Plants	Furnish replacement switchgear and excitation system—Las Perillas and Badger Hill Pumping Plants (94-28)	November 1994	November 1998	713
Pipeline	Construct pipeline Reach 1 (93-14)	December 1993	May 1997	32,650
	Construct pipeline Reach 2 (93-33)	March 1994	May 1997	42,000
	Construct pipeline Reach 3 (94-05)	June 1994	August 1997	28,714
	Construct pipeline Reach 4 (94-29)	January 1995	January 1997	28,335
	Construct pipeline reaches 5A1 and 5A2 (95-18)	August 1995	In arbitration	57,000
Pumping Plants—Devil's	Furnish pump units (93-25)	December 1993	December 1997	3,953
Den, Bluestone, and Polonio Pass	Construct pumping plants—initial (93-30)	January 1994	November 1996	22,000
	Furnish switchgear—Devil's Den, Bluestone, and Polonio Pass pumping plants (94-03)	July 1994	November 1997	2,166
	Furnish power transformers—Devil's Den, Bluestone, and Polonio Pass pumping plants (94-11)	July 1994	January 1998	1,009
	Furnish air chambers—Devil's Den, Bluestone, and Polonio Pass pumping plants (94-12)	July 1994	January 1997	3,359

Table 13-2 Construction Activities, July 1996 through June 1997, by Division

Construction Division and Facility	Construction Contract (Specification Number)	(NTBW) Starting Date	Acceptance Date (Expected or Actual)	Contract Costs (Thousands of dollars)
	Furnish and install bridge cranes—Devil's Den, Bluestone, and Polonio Pass pumping plants (94-21)	September 1994	November 1996	2,108
	Complete construction—three pumping plants (94-31)	March 1995	December 1997	20,000
Tank Sites	Construct Tank 1 facilities (93-27)	December 1993	July 1997	26,200
	Construct Tank 2 facilities (95-02)	June 1995	September 1997	9,200
Valves	Furnish ball valves (93-34)	April 1994	December 1997	4,700
	Furnish butterfly valves and turbine bypass valve—Devil's Den Pumping Plant to Vandenberg AFB (94-06)	July 1994	December 1997	4,430
Miscellaneous	Furnish power circuit breakers and switch- yard equipment—Devil's Den to Casmalia (94-04)	July 1994	October 1996	697
	Furnish engine generator sets—Las Perillas Pumping Plant to Lopez Turnout (95-03)	June 1995	November 1997	793
	Furnish acoustic velocity flowmeters— Devil's Den to Valve Vault Facility (95-05)	June 1995	November 1997	400
	Fiber optic cable installation (95-11)	August 1995	March 1996	401
	Seed and control erosion (96-16)	September 1996	December 1998	423
South San Joaquin Divisio	n			
Aqueduct	Aqueduct modification, mileposts 206.10 to 207.94 (96-19)	October 1996	April 1997	848
Chrisman Windgap Pumping Plant	Furnish stator coils (92-11)	July 1992	December 1997	582
Operating Road	Seal coat primary operating road (96-05)	July 1996	August 1996	186
Miscellaneous	Construct warehouse—Lost Hills Operations and Maintenance Subcenter (94-34)	April 1995	September 1996	286
Tehachapi Division				
Edmonston Pumping Plant	Construct blast paint facility (95-14)	October 1995	May 1997	1,656
	Furnish pump spare parts, Units 1, 3, 5, 7, 9-14 (96-25)	January 1997	May 1998	1,888
	Furnish 15.8 kV circuit breakers (97-01)	April 1997	August 1998	7,135
West Branch				
Oso Pumping Plant	20-ton trolley for bridge crane (96-24)	June 1997	June 1998	241
Pyramid Dam	Remediate spillway (95-15)	April 1996	October 1997	1,850
Miscellaneous	Repair landslide and road, Pastoria Access Road and Quail Lake Operating Road (97-05)	May 1997	July 1997	604

Table 13-2 Construction Activities, July 1996 through June 1997, by Division

Construction Division and Facility	Construction Contract (Specification Number)	(NTBW) Starting Date	Acceptance Date (Expected or Actual)	Contract Costs (Thousands of dollars)
Mojave Division				
Aqueduct	Canal repair, mileposts 333.80, 343.81, and 344.14 (96-13)	October 1996	April 1997	2,270
	Modify Aqueduct mileposts 206.10 to 207.94 (96-19)	October 1996	April 1997	848
Mojave Siphon Pipeline	Construct Mojave Siphon Second Pipeline (91-33)	March 1992	September 1996	51,500
	Revegetate (95-23)	October 1995	March 1997	169
Mojave Siphon Powerplant	Furnish and install turbines, generators, and governors (89-13)	August 1989	March 1998	14,600
	Furnish and install butterfly valves—Mojave Siphon and Devil Canyon Powerplants (91- 15)	August 1991	February 1999	6,179
	Complete powerplant (92-30)	February 1993	May 1996	7,592
	Furnish and install acoustic velocity flow meters (93-18)	October 1993	July 1998	437
Pearblossom Pumping Plant Enlargement, Phase II	Furnish and install vertical centrifugal pumps (87-04)	May 1987	June 1998	2,780
Silverwood Lake	Construct rock reefs (96-28)	November 1996	January 1997	116
	Install fiber optic cable (97-06)	March 1997	September 1997	93
Santa Ana Division East B	ranch Enlargement			
Devil Canyon Powerplant	Furnish and install turbines, governors, and valves (87-15)	July 1987	Units rejected	10,200
San Bernardino Tunnel	Reconstruct intake (95-07)	July 1995	December 1997	25,400
Santa Ana Valley Pipeline	Excavate, inspect, and repair (95-20)	September 1995	August 1996	845
Sugarloaf Mountain	Provide remedial drainage (96-14)	October 1996	March 1997	223
Miscellaneous Activities				
Cherokee Canal	Remove sediment - Phase 1 (96-09)	July 1996	December 1996	867
Jibboom Street Site	Protect building (96-06)	July 1996	November 1996	113
	Grading (97-04)	June 1997	July 1997	165
Magneson Site, Merced River	Restore river (96-08)	July 1996	October 1996	229
Merced and Tuolumne Rivers	Repair restoration (96-15)	September 1996	October 1996	65
Multiple Divisions	Furnish steel pipe sections, Delta and Southern field divisions (96-26)	January 1997	June 1998	650

Horseshoe Bend Fish Screen. Contract work to install fish screens on two siphons is expected to begin in August 1997 and be completed by December 1997. In addition to the two screens for the 15 cfs siphons, work includes replacing 200 feet of 24-inch-diameter steel pipe, a screen backwash system, an access platform, four 24-inch-butterfly valves, timber piles to support the pipe and platform, power hookup, and safety buoys and floats.

Other Activities. Staff investigated and reported on an ancient landslide on Bloomer Hill above Lake Oroville. DOE participated in the 5-year safety review board for Antelope, Frenchman, and Grizzly Valley dams. Staff assisted the Department of Fish and Game with their program to eradicate northern pike from Lake Davis.

Construction activities during this reporting period included the following:

**Enterprise Bridge.** A contract to recoat the Enterprise Bridge spanning the South Fork of the Feather River at Lake Oroville was let in February 1997 and is scheduled for completion in November 1997. The Contractor had to keep swallows from nesting in the work area. This operation was monitored by a Department environmental specialist.

**Floating Campsites.** The contract to construct 10 floating campsites for the Lake Oroville Recreation Area, let in April 1996, was accepted in February 1997.

**Comfort Station.** A contract to construct a comfort station and sewer pipeline at North Thermalito Forebay was let in October 1996 and should be completed in July 1997.

# **Delta Facilities**

Rock Barriers. A new contract to construct 1996-97 seasonal temporary rock barriers in the Delta was let in April 1996, with completion scheduled for December 1997. This contract is similar to the previous barrier contract whereby the various rock barriers are built by construction orders under a single contract.

The Old River (at the San Joaquin River) barrier was constructed in October 1996 and removed in November 1996. The Middle River barrier was installed in May 1996 and removed in September 1996. Barrier installation in Old River (at the Delta-Mendota Canal) and Grant Line Canal was accomplished in June and July 1996, respectively; both were removed in October 1996.

# **Suisun Marsh Facilities**

Montezuma Slough Control Gates. Bids for a construction contract to repair seepage and alleviate settlement of the Montezuma Slough Salinity Control Gates were opened in June 1996. The contract was completed in October 1996.

**Suisun Marsh.** Staff developed final plans and specifications for a contract to dredge the Morrow Island Distribution System and replace the existing outlet structure.

Other Activities. Division of Engineering staff provided assistance to the Delta Field Division to develop rating curves for the intake pipes at Roaring River. Staff also provided assistance to construct a flashboard riser in Roaring River to help control the water surface, reduce water velocity through the Roaring River fish screens, and allow landowners to fill and drain their properties more easily.

The Division developed preliminary design and cost estimates for a fish screen system at Lower Joice Island.

Staff drilled exploration holes at Sherman Island for laboratory testing of peat soil samples.

Delta Operations and Maintenance Center. Division staff assisted field division forces with the ADA modifications made at the O&M Center facilities. A contract to perform building modifications to the existing Delta Area Control Center, including electrical system modifications, the addition of a concrete-block battery room, and the addition of a concrete-block women's restroom facility to the general warehouse facility to comply with ADA requirements was awarded in January 1996 and is scheduled to be completed in July 1997.

**South Bay Aqueduct.** Division staff completed a hydrologic and hydraulic report for the cross drainage facilities at Dyer, Livermore, and Alameda canals.

Construction of the Del Valle Waste Area Remediation project was completed in July 1996.

**Banks Pumping Plant.** Work continues on the contract to furnish spare electrical coils for the pump motor at this facility. Completion is estimated for December 1997.

Seal Coating. A contract to apply asphalt slurry seal, seal coat, and fog seal at 10 separate locations in this division was let in July 1996 and completed in November 1996. Locations included: North Bay Aqueduct Facilities, Banks Pumping Plant, Delta O&M Center, Del Valle Dam, Del Valle Pumping Plant, and Patterson Reservoir.

#### San Luis Division

A study for transformer oil spill containment at Gianelli Pumping-Generating Plant was completed in June 1997.

Division staff assisted field division forces with ADA modifications at the O&M Center and Romero Visitor Center.

The following are brief descriptions of construction activities completed or currently in progress in the San Luis construction division.

Aqueduct. The contract to repair the canal, mileposts 134.98 and 157.40, let in January 1997, was completed in April 1997. Heavy rains in the winter of 1994-95 caused overtopping and damage to the aqueduct. Repair work consisted of removing and replacing buckled and displaced concrete panels, rebuilding eroded canal embankment, and placing preformed concrete liners in the canal and filling them with concrete slurry.

# San Luis Operations and Maintenance Center.

Construction of a metal warehouse facility is expected to be completed in July 1997.

Gianelli Pumping-Generating Plant. A contract to modify and retrofit the trashrack access bridge at Gianelli Pumping-Generating Plant was let in October 1996 and accepted in June 1997. This work was necessary to increase the stability of the bridge during an earthquake.

**Dos Amigos Pumping Plant.** Furnishing automatic voltage regulators for units 1 through 6 at Dos Amigos Pumping Plant continued, with completion expected in July 1997. This contract was extended to provide additional services of an erecting engineer to install the last 3 units.

A contract to construct a transformer oil spill containment structure at Dos Amigos Pumping Plant was let in August 1996 and completed in December 1996.

A contract to construct a storage building was let in January 1997, with completion expected in July 1997.

# **Coastal Branch**

**Phase I Construction.** Manufacturing and replacing electrical switchgear for Las Perillas and Badger Hills Pumping Plants continues, with an estimated completion date in November 1998.

Phase II Construction. Construction of Coastal Branch, Phase II, added approximately 100 miles of pipeline to the existing Phase I facilities. Of the 100 miles, the Department constructed some 72 miles, with the remainder being constructed by Central Coast Water Authority. All major facilities on the project are scheduled to be completed by July 1997, so that water delivery could begin. Minor work and punch list items are scheduled to be completed by December 1997.

The following is a brief recap of the different facilities constructed for this project by the Department.

**Pipeline Reaches.** Pipeline reaches for the facilities include:

 Approximately 360,980 linear feet of pipeline from Devil's Den Pumping Plant to the end of Reach 5A2;

- Three pumping plants (Devil's Den, Bluestone, and Polonio Pass) with six 10,000-gallon-perminute pump units in each plant;
- Two tank sites (Tank Site 1 and Tank Site 2) with several water-holding tanks at each site;
- Steel air chamber tanks at the three pumping plants; and
- Appurtenant mechanical and electrical equipment.

**Tank 1—Polonio Pass.** All major construction work for the Tank 1— Polonio Pass complex was completed by June 30, 1996, with only minor punch list items to be completed. The contract was accepted July 2, 1997.

**Pumping Plants.** Work on the three pumping plants' initial contract (Devil's Den, Bluestone, and Polonio Pass) was completed by June 30, 1996, with minor punch list item work to be completed. The contract was accepted November 14, 1996.

Work on the three pumping plants under the completion contract was about 70 percent complete as of June 30, 1996. It is estimated that the work will be completed in December 1997.

**Cuesta Tunnel.** Modification work for Cuesta Tunnel was completed in August 1996.

**Tank Site 2.** Work on construction of the tanks at Calf Canyon continued with 58 percent of the work completed. Completion is anticipated by September 1997.

**Air Chambers.** Erection of the air chambers at Devil's Den, Bluestone, and Polonio Pass pumping plants was essentially completed.

**Equipment.** The manufacture of bridge cranes, pumps, motors, transformers, fiber optic cable, switchgear, switchboards, valves, and other appurtenant equipment was essentially completed and delivered to the job sites. Installation of the equipment is in various stages of completion.

A contract to provide seeding and control erosion facilities was let in September 1996 and will be completed in December 1998.

# **South San Joaquin Division**

Studies for transformer oil leak containment at Buena Vista and Teerink pumping plants were completed in July 1996; Chrisman Pumping Plant was completed in November 1996.

Division staff continued to assist the field division forces with the ADA modifications made at the O&M Center.

Construction work completed or currently in progress in this division is as follows.

**Aqueduct.** Contract work for aqueduct modification started in October 1996 and was completed in April 1997. The work consisted of canal excavation, embankment construction, canal concrete lining, and operating-road reconstruction.

**Chrisman Pumping Plant.** Stator coils manufacturing began under a contract awarded in July 1992. Work is about 95 percent complete. Completion is expected in December 1997.

Lost Hills Operations and Maintenance Subcenter. Warehouse construction at this facility began in April 1995 and was completed in September 1996.

**Seal Coat Operating Roads.** A contract to seal coat 37 miles of aqueduct operating roads from milepost 213.97 to milepost 250.99 (Kern County west of Bakersfield) was awarded in July 1996; work was completed in August 1996.

# **Tehachapi Division**

Division staff assisted field division forces with the ADA modifications required at Edmonston Pumping Plant.

Construction work completed or in progress in this Division during this reporting period is as follows.

**Edmonston Pumping Plant.** Construction of a blast-paint facility began in October 1995 and was completed in May 1997.

A contract to furnish spare parts for pump units 1, 3, 5, 7, and 9 through 14 was let in January 1997, with completion expected in May 1998.

Contract work to furnish 15.8 kV electrical circuit breakers for this facility began in April 1997, with a completion date expected in August 1998.

# **Mojave Division**

Design was completed to repair three areas of the California Aqueduct, at mileposts 333.8, 343.81, and 344.14, where severe cracking occurred.

Staff completed and transmitted to FERC the Summary Geology Report for Cedar Springs Dam.

The following paragraphs describe construction activities in the Mojave Division.

Aqueduct. Contract work to repair damaged canal sections at mileposts 333.80, 343.81, and 344.14 began in October 1996 and was completed in April 1997. These repairs were necessary because of the damage caused by landslide seepage. The work consisted of removing damaged concrete canal lining panels, application of a three-step waterproofing membrane, and the application of a 2-inch-thick shotcrete lining.

A contract to modify and repair damaged canals sections from milepost 206.10 to milepost 207.94 was let in October 1996 and completed in April 1997. The work was similar to that described above.

**Mojave Siphon Second Pipeline.** All work on the initial contract to construct this facility was completed in September 1996.

**Mojave Siphon.** A contract to perform revegetation work over the buried pipeline was awarded in September 1995 and completed in January 1996. A 1-year plant establishment period extended the contract completion date to January 1997.

Mojave Siphon Powerplant. Installation and operational testing of the three new turbines and generators along with associated equipment is essentially complete. The three units were ready for commercial operation in July 1996; however, final performance testing will not begin until the cooling water/seal problem has been resolved and the units demonstrate reliable operation. Final testing of the acoustic velocity flowmeters at this facility cannot be accomplished

until Silverwood Lake returns to normal water levels. The lake water level was lowered to facilitate construction of the San Bernardino Tunnel Intake.

**Silverwood Lake.** A contract to construct rock reefs in the lake and provide artificial fish habitat was let in November 1996 and completed in January 1997. This work was required to mitigate fish habitat that may have been impacted by the lowering of Silverwood Lake to accommodate construction of the new San Bernardino Tunnel Intake.

Contract work to install Department-furnished fiber optic control cable between Cedar Springs Dam control building and Mojave Siphon slide gate control building began in March 1997 and was completed in March 1997.

Valves. A contract to furnish and install butterfly valves for the Mojave Siphon and Devil Canyon powerplants was awarded in July 1991. The original valves ordered under this contract were delivered and installed by February 1996. Two additional 120-inch valves for use as turbine-shutoff valves were ordered. Installation will be delayed until valve vault construction is complete. Contract completion is expected by February 1999.

**Pearblossom Pumping Plant.** Work continued on fabricating seals in an attempt to solve the leaking of the new pump units installed during enlargement of the plant. The pump contract cannot be accepted until this problem is resolved. Contract acceptance is not expected until June 1998.

# Santa Ana Division

The remedial drainage provisions for Sugarloaf Mountain contract intercepted and redirected the sheet flows for the drainage area on the south side of Sugarloaf Mountain by placing a series of cross ditches to convey the water to a shotcrete-lined ditch. This work was completed in March 1997.

Staff drilled, sampled, and tested 24 exploration holes as part of a foundation study for Perris Dam.

**Sitework at Devil Canyon Powerplant.** Contract documents were prepared for improving Bailey Creek Channel, constructing a debris basin, widening

and extending Ohio Avenue, constructing a building for the water quality unit, paving around the power-plant, constructing a parking lot, and miscellaneous erosion control measures. Construction is expected to begin in fall 1997.

East Branch Extension. Final design began in early 1997 on facilities to extend the East Branch of the California Aqueduct to Cherry Valley. The facilities will deliver SWP water from the Devil Canyon Powerplant afterbay to the eastern portion of the San Bernardino Valley Municipal Water District service area and to the San Gorgonio Pass Water Agency. The first of nine construction contracts will be advertised in 1998. A supplemental environmental impact report is being prepared for distribution in fall 1997. The project (13.5 miles of large-diameter pipeline, three pumping stations, and a dam and reservoir) is scheduled for completion in June 2000.

San Bernardino Tunnel Intake. In July 1995, construction began on the new San Bernardino Tunnel intake to comply with current seismic code requirements. Testing the gate seals and replacing the intake gate operator is scheduled for December 1997.

All major excavation and tunneling work was completed by June 1996. Some 91,000 cubic yards of earth, 465 linear feet of a 31-foot diameter tunnel, and 16 linear feet of a 29-foot diameter access shaft were excavated for this project. Reinforced concrete construction required 10,600 cubic yards of concrete. With some exceptions, mechanical work, including an intake gate, a bulkhead gate, trashracks, lifting cranes, and associated electrical work, was completed by June 30, 1997.

The new intake structure began water deliveries in March 1997. This event allowed the SWP to begin filling Silverwood Lake and enabled the Department to make contract water deliveries through the San Bernardino Tunnel.

**Devil Canyon Powerplant.** As reported in Bulletin 132-96, all contract work for this facility, with the exception of the turbine, has been completed and accepted. The turbine contractor continues to work on a remedial solution for the turbine low-horse-

power output at maximum flow. The contract will not be accepted until this problem has been solved.

Other Activities. Other construction work included a contract for Santa Ana Pipeline excavation, inspection, and repair. The work began in September 1995 and was completed in August 1996.

#### **West Branch**

An evaluation of the concrete deterioration in the outlet works was performed at Pyramid Dam, as recommended by the 1995 FERC and Director's Safety Review boards. Preliminary review indicated that the deterioration is primarily the result of salt crystallization and does not impact the safety of the structure. A memorandum report summarizing the results of the testing program was completed in December 1996.

Gorman Creek. Design of a bypass channel around Warne Powerplant will be completed in summer 1997. Construction is scheduled to begin in the spring/summer of 1998. Design work also continued on measures to protect State facilities from large flows in Gorman Creek.

**Castaic Dam.** Division staff assisted field division forces with the ADA modifications required at Vista del Lago Visitor Center.

Construction activities on the West Branch included the following:

- study of alternative conveyances to bypass the Peace Valley Pipeline and/or Warne Powerplant;
- installation of a subsurface drain seal to eliminate ongoing subsurface erosion along the Peace Valley Pipeline; and
- cursory study of alternatives to remove silt deposited in the tail race channel below the Warne Powerplant was completed.

**Pyramid Dam.** Work continued on a contract to perform remedial work on the Pyramid Dam spillway. The work began in April 1996 and is estimated to be completed in October 1997. The work consists of removal of badly eroded material from two shale rock strata from the 1,200-foot-long unlined rock spillway channel; drilling, installing, and grouting steel anchors; and welding wire fabric.

Oso Pumping Plant. A contract was let in June 1997 to engineer, fabricate, furnish, install, and test a 20-ton pendant and infrared radio-remote-controlled electric-driven trolley to be retrofitted on an existing overhead traveling 60-ton bridge crane at this facility. Completion is planned for June 1998. The contract also includes furnishing special tools and spare parts.

Road Repairs. In May 1997, contract work began for landslide removal and road repair at Pastoria Access Road and repair of Quail Lake Operating Road. The work is expected to be completed in July 1997. The work consists of removing landslide material, grading slopes, placing geobrick, seeding slopes, reconstructing roads, and constructing drainage facilities.

# Radial Gate Inspection and Structural Evalua-

tion. The structural evaluation and inspection of SWP dam radial gates was initiated in response to a directive from the Division of Safety of Dams as a result of the failure of Spillgate No. 3 at Folsom Dam on July 17, 1995. Division staff inspected and reanalyzed 37 radial gates on the Department's facilities. All inspections have been completed. The inspections were completed by climbing teams trained by Caltrans personnel and a private consultant. A final report summarizing the inspection and structural evaluations of the gates was completed by June 1997.

# Miscellaneous

Miscellaneous construction activities are listed below.

**Cherokee Canal.** A contract for sediment removal was let in July 1996 and completed in December 1996.

**Jibboom Street Site.** A contract to provide protection to the building was let in July 1996 and completed in November 1996.

**Magneson Site, Merced River.** River restoration work at this location began in July 1996 and was completed in October 1996.

**Merced and Tuolumne Rivers.** Repair and restoration work on the two rivers began in September 1996 and was completed in October 1996.

**Steel Pipe Sections.** A contract to fabricate steel pipe sections for Delta and Southern field divisions was let in January 1997, with completion expected in June 1998. These pipe sections will be used to make repairs in emergency situations.

# **Right of Way Activities**

The Department spent a net total of \$244.7 million to acquire rights of way and mitigation lands for the SWP from inception to June 30, 1997. In fiscal year 1996-97, the Department:

- acquired three parcels (approximately 3,431 acres) in fee for a total purchase price of \$7,166,218;
- acquired easement rights over 64 parcels (185.33 acres) for a total price of \$495,750;
- managed 86 leases for a total revenue of \$880,977;
- sold two properties (78.73 acres) for \$93,900; and
- issued 148 temporary entry permits for various purposes.

# Coastal Branch, Phase II

To date, the Department has secured all rights required for construction. In fiscal year 1996-97, the Department:

- obtained 12 temporary entry permits for geological, archaeological, and environmental studies and surveys for project design and regulatory permits; and
- obtained easements (184.92 acres over 20 parcels) for pipeline, temporary construction, electrical transmission lines, and access roads at a cost of \$495,050.

In addition to departmental actions, the California Water Commission approved Resolutions of Necessity for two parcels, enabling the Department to continue with eminent domain proceedings.

# West Delta Program-Sherman Island

The Department purchased three parcels (3,431,154 acres) for a total cost of \$7,166,218. The Department now owns more than 95 percent of the 10,000-acre island and continues to negotiate with any willing sellers to purchase remaining parcels.

# **Kern Fan Element**

More than 20,000 acres were transferred to Kern County Water Agency for reduction in SWP water entitlement of about 45,000 acre-feet per year.

Information for this chapter was provided by the Division of Engineering and the Division of Land and Right of Way.

# Chapter 14 Recreation



Water-skiing—a popular sport along much of the SWP

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#### **Significant Events**

- Lake Del Valle made ornithological headlines as the site of the first bald eagle chick hatched in the Bay Area in almost 100 years. It is encouraging to see this species choose Del Valle as a nesting site. The successful rearing of this eaglet was indeed an accomplishment. The nesting received extensive media coverage including CNN and Network TV.
- Also at Lake Del Valle, the East Bay Regional Park District completed construction of the Del Valle Northeast Shore Trail, which includes a bridge across Arroyo Del Valle. Recreationists are now able to cross the arroyo and enjoy miles of scenic trails. Dedication of this facility will occur sometime in 1997.
- At the Lake Oroville Complex, construction was completed on the 41-mile mountain bicycle trail main loop. This trail was constructed as part of a response to a 1993 directive from the Federal

- Energy Regulatory Commission. About half of this trail was opened in 1994. Since opening, the trail has been favorably received and heavily used.
- Dedication of the Lime Saddle Marina renovation at Lake Oroville took place July 2, 1996.
   These improvements included the launch ramp roadways and parking areas along with picnic and overlook areas. The improvements were funded by the Department of Boating and Waterways.
- The Department of Water Resources State Water Project Recreation Coordinating Committee's meeting was hosted by East Bay Regional Parks District in June at EBRPD's Garms facility.
   General Manager Pat O'Brien was presented a certificate of appreciation for his support of the Committee and EBRPD's contribution.

Chapter 14 Recreation

he State Water Project is a multipurpose project that benefits millions of Californians. In addition to providing water supply, flood control, and habitat for fish and wildlife, the SWP offers extensive and varied recreational opportunities—tours, sight-seeing, fishing, hunting, camping, boating, water skiing, bicycling, and swimming.<sup>1</sup>

#### **Recreation Areas**

The State Water Project has 37 developed recreation areas or sites throughout California, including 17 fishing access sites. Figure 14-1 shows the names and locations of each area.

#### **Recreation-Days**

In 1996, SWP facilities received 4.73 million recreation-days of use, a slight decrease from the 4.94 million recreation-days recorded in 1995 (Table 14-1). Recreational use at the 17 developed fishing access sites and along the California Aqueduct Bikeway was down more than 10 percent from that of 1995.

Some of this decline in recreational facilities usage was caused by flooding at Lake Del Valle and—later in the season—a 750-acre fire requiring evacuation of stranded campers from a Phase III campground. These events contributed to the decrease in usage by more than 60,000 recreation-days from that recorded in 1995.

Most SWP recreation and visitor use was concentrated at the major reservoirs, where well-developed facilities accommodate the public. Fifty percent of the total SWP recreational use in 1996 occurred at the four major reservoirs in Southern California: Pyramid Lake, Castaic Lake, Silverwood Lake, and Lake Perris.

Table 14-1
Recreation-Days Recorded in 1996,
by Division and Facility

by Division and Facility	
	Number of
Division	Days
Oroville Field Division	
Frenchman Lake	222,900
Antelope Lake	73,100
Lake Davis	233,800
Lake Oroville and Thermalito Forebay	691,700
Thermalito Afterbay and Oroville Wildlife Area	220,000
Total	1,441,500
Delta Field Division	, ,
Lake Del Valle	353,700
Bethany Reservoir	23,300
Fishing Access Sites:	
Neils Hansen	100
California Aqueduct:	
Walk-In Fishing	12,600
Bikeway	200
White Slough Wildlife Area	12,500
Total	402,400
San Luis Field Division	·
San Luis Reservoir	172,000
O'Neill Forebay	272,500
Los Banos Reservoir	39,400
California Aqueduct:	
Walk-In Fishing	13,600
Wildlife Areas	8,500
Total	506,000
San Joaquin Field Division	
Fishing Access Sites:	
Kettleman City	1,000
Lost Hills	1,000
Buttonwillow	1,100
California Aqueduct:	
Walk-In Fishing	8,700
Total	<b>11,80</b> 0
Southern Field Division	
Silverwood Lake	237,000
Lake Perris	1,157,300
Pyramid Lake	300,000
Castaic Lake	666,000
Fishing Access Sites:	
Quail Lake	1,300
77th Street East	200
Longview Road	100
California Aqueduct:	
Walk-In Fishing	2,500
Bikeway	400
Total	2,364,800
Grand Total	4,726,500
	· · · · · · · · · · · · · · · · · · ·

<sup>&</sup>lt;sup>1</sup> According to the Davis-Dolwig Act (Water Code Sections 11925, *et seq.*), the Department has overall responsibility to acquire property, plan recreation, and ensure that enhancement of fish and wildlife habitat is included as part of the State Water Project, although the costs of these recreation activities are not borne by the water supply contractors. In addition, Federal Energy Regulatory Commission License Numbers 2100 and 2426 require the Department to plan for recreational and associated activities at licensed SWP facilities.

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Figure 14-1 Names and Locations of SWP Recreational Areas



- 1. Antalogo Lata Recreation Area
- Frenchmen Lake Reconstion Area
- 3. Lake Davis Recreation Area
- 4. Lake Oravilla State Recounties Area
- 5. White Stough Whilele Area
- 4. Bulliumy Reservoir
- 7. Lake Pel Yalle State Recreation Area.
- 5. Blummy from Batterny Planervolr to O'Neil Furnbay (70 miles)
- 9. Great Line Read Fishing Acces
- 10. Niete Harmon Flatting Access 68to
- 11. Oreelimbe Plahing Access 58c
- 12. Welk-in Flering (\$3 miles)
- 13. Collowwood Road Fishing Access Site
- 14. Sen Lub Reservoir Sini Recruetion Area
- 15. Los Barros Reservair
- 14. Cargon Rossi Fishing Access \$4e.
- 17. Meriel Avenue Rehing Access Sile 18. Februar Robing Access Sile
- 19. Access to Wall-in Fishing (295 miles of accessibility stong the assurbust)

- 20. Three Rocks Flehing Access Sile
- 21. Huren Flaking Access 50s
- 22. Avenue Curoff Fishing Access 6th
- 25. Kelleman Cily Plahing Access Sile
- 34. Last Hija Fishira Access Site
- 26. Bullioned low Flahing Access Site
- 26. Pyramid Lake Sink Resourtion Area
- 27. Gestalo Leite Stale Recreation Area
- 28. Mariz Ranch Road Flating Access St
- 29. History from Clast Late to Ellenmont Lake (197 miles, not all eccessible) 50. 70th Street West Fishing Access Site
- 31. Walieln Fishing (69 miles)
- 32. Avenue & Flahing Account
- 33. 77th Street East Flating Access Sile
- 34. Longview Road Flahing Account City 36. Eliverated Lake Blate Recreation Area
- 36. Lake Perris Blate Regression Area.
- 37. Ben Jesteto Wildlife Area

Chapter 14 Recreation

Since the SWP began delivering water in 1962, more than 140 million recreation-days have been recorded at SWP recreational facilities.

#### **Facility Planning**

During 1996, the following Lake Oroville Complex recreation facilities planning activities occurred:

- Oroville Field Division completed the final plans and specifications for an aquatic center, en route camping area, and restroom facilities at the North Thermalito Forebay. Construction of the camping area was completed in October; the other two facilities are scheduled to be operational by summer 1997.
- Plans and specifications were completed and construction began on 10 floating campsites that will be moored at various locations on Lake Oroville. Each will be a two-story structure measuring 20 by 24 feet and equipped with a flush toilet, non-potable water supply, storage locker, picnic table/bench, and gas BBQ. These floating campsites should be launched and on the lake for the 1997 recreation season.

#### **New Facilities**

**Lake Oroville.** The following new facilities were completed at Lake Oroville recreation areas:

- Restrooms were constructed at Monument Hill overlooking Thermalito Afterbay.
- A fish-cleaning station was added at the South Forebay area.
- An en route camping area for RVs was added at the North Forebay area for travelers along Highway 70.

**At Lake Del Valle.** The following new facilities were completed at Lake Del Valle recreation areas:

- New shower towers were installed for beach users.
- A bridge across Arroyo Del Valle for bikers and hikers was added downstream of the dam.
- A new Bald Eagle Trail was added along the east shore.
- Signs were installed designating bald eagle nesting area off-limits.

#### **Improvements to Facilities**

The following improvements were made at SWP recreation areas during 1996 to help meet recreational demands:

**Lake Oroville.** The following improvements were made at Lake Oroville recreation area:

- Improvements to the launch ramp, road, and parking area were made at Wilbur Road area.
- Renovation of the Lime Saddle Marina Area included improving the launch ramp, road, and parking areas, as well as improving the picnic and overlook areas. This renovation was funded by the Department of Boating and Waterways.

**Lake Del Valle.** The following improvements were made at Lake Del Valle recreation area:

- Eight restroom buildings received a face-lift, which included new roofs and paint jobs.
- Seventy-five trees were planted in the campground area.

**Silverwood Lake.** The Department of Boating and Waterways provided funding for the following improvements:

- The Sawpit Canyon launch ramp was expanded from six to seven lanes, overlain with concrete, and the shoreline was reconstructed.
- The launch ramp at Cleghorn Canyon was lengthened.

#### **Oroville Recreation Plan**

On October 1, 1992, the Federal Energy Regulatory Commission issued Order 2100-052, which required the Department to prepare a revised recreation plan for Lake Oroville. The new plan replaced the original *Oroville Reservoir, Thermalito Forebay, and Afterbay Recreation Report* (Bulletin 117-6), which was prepared in December 1966, but never fully implemented. The new plan, in FERC Order 2100-054, submitted June 1, 1993, and approved September 22, 1994, includes additional recreation facilities and addresses concerns raised by local residents regarding recreation and fishery-related issues.

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Recreation plan implementation began in 1995 with establishment of the Lake Oroville Recreation Advisory Committee. This committee of local government, citizens groups, and State agencies was formed to advise the Department on recreation plan implementation. Elements being developed or already completed include:

- An en route RV camping area was added at the North Forebay Area.
- Construction began on a duck brood pond and restroom and picnic facilities at Thermalito Afterbay. Buoys were deployed around water-ski slalom course.
- Construction was completed on the 41-mile bike trail main loop.
- Construction of the Lime Saddle Boat Ramp improvements (Department of Boating and Waterways), equestrian campground at Loafer Creek Recreation area, and lighting on Oroville Dam was completed.
- At Lake Oroville, fishery and fishing improvements included developing a fish management and stocking plan, stocking chinook salmon, and deploying fish shelters.

Most recreation and fish facilities should be complete by 1998; certain elements of the plan may require time extensions to complete.

#### **Fish Plantings**

In 1996, the Department of Fish and Game continued its fish-planting activities at 10 SWP facilities and 1 facility, Lake Skinner, owned by the Metropolitan Water District of Southern California. Total plantings of trout and chinook salmon increased by nearly 10 percent in 1996 (Table 14-2).

At the Feather River Fish Hatchery and the Thermalito Afterbay rearing ponds, 15,090,700 fish were produced in 1996, down 9 percent from 1995. That figure includes 14,530,800 chinook salmon and 559,900 steelhead trout. Of the chinook salmon reared, 2,829,300 were fingerlings, 11,329,300 were advanced fingerlings, 24,000 were yearlings, 323,200 were subcatchables, and 25,000 were catchables. Of the steelhead reared, all 559,900 were yearlings.

#### **Recreation Financing**

Recreational facilities are financed in accordance with several legislative provisions, specifically, the Davis-Dolwig Act (Water Code Sections 11925 *et seq.*), Assembly Bill 12 (Water Code Sections 11912, 11915, and 11915.1), and the Environmental Water Act, Assembly bills 1441 and 1442 (Water Code Sections 12929 *et seq.*).

The Davis-Dolwig Act declared that providing for the enhancement of fish and wildlife and for recreation in connection with State water projects benefits all the people of California and that the costs attributable to such enhancement should be borne by them. The act also provided a procedure to reimburse the Department for those project costs allocated to recreation and fish and wildlife enhancement and for costs of acquiring property for recreation development.

The reimbursements were included in the Department's budget as appropriations from the General Fund and used by the Department to pay for operations, maintenance, power, and replacement costs associated with operating the SWP.

Assembly Bill 12 provided for a \$5-million annual appropriation from tideland oil and gas revenues for joint costs of State water projects allocated to recreation, enhancement of fish and wildlife, and purchases of land for recreational uses. Through the 1985-86 fiscal year, the Department received \$90 million from tideland oil and gas revenues for funding joint capital costs and recreational land purchases.

Assembly Bill 1442, known as the "Offset Legislation," offsets moneys owed the California Water Fund by the SWP with reimbursements owed the project by the General Fund under the Davis-Dolwig Act.

Appendix D to Bulletin 132, *Costs of Recreation and Fish and Wildlife Enhancement*, contains specific information about capital costs allocated to fish and wildlife enhancement and recreational enhancement and recreational development. This report to the Legislature is published annually by the Department.

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Table 14-2 Fish Planted in 1996 (Thousands)

Location and Size	Eagle Lake Trout	Rainbow Trout	Brown Trout	Chinook Salmon	Total			
Antelope Reservoir Catchable		170.0			170.0			
Lake Davis Catchable	37.5				37.5			
Frenchman Reservoir Subcatchable		102.6			102.6			
Lake Oroville Catchable Fingerling			46.9	150.4 105.8	150.4 152.7			
Thermalito Forebay Catchable		34.5			34.5			
Lake Del Valle Catchable		47.6			47.6			
Los Banos Reservoir Catchable		11.4			11.4			
Pyramid Lake		N	o Fish Plai	nted				
Castaic Lake Catchable		20.4			20.4			
Castaic Lake Lagoon Catchable		48.9			48.9			
Silverwood Lake		N	o Fish Plai	nted				
Lake Perris Catchable		66.7			66.7			
Lake Skinner (a Catchable		63.5			63.5			
California Aqueduct	No Fish Planted							
Total	37.5	565.6	46.9	256.2	906.2			
a) Included in SWP fish planting program but not an SWP facility								

Information for this chapter was provided by the Division of Planning and Local Assistance, Central District, the Office of Water Education, and the State Water Project Analysis Office.



Complex financial issues are involved in operation of the State Water Project

#### **Significant Events**

- On November 5, 1996, the Department sold \$267 million of Water System Revenue Bonds, Series Q. The proceeds were used to provide long-term financing of construction expenditures, pay for bond financing costs, and refinance \$102 million of previously issued bonds.
- On March 11, 1997, the Department sold \$21 million of variable-rate Water System Revenue Bonds, Series R. The proceeds were used to refinance \$18 million of previously issued bonds and to pay for bond financing costs.

his chapter presents both a summary and a detailed explanation of SWP current financial analysis, capital costs and requirements, revenues and expenses, and bond activities for years 1997 through 2010.

The Department performs a financial analysis annually to ensure that the SWP financing program will have sufficient funds to meet construction obligations; project operation, maintenance, power, and replacement costs; bond debt service payments; and repayment of California Water Fund moneys expended for construction. The results of the current financial analysis, dated June 30, 1997, are presented in Tables 15-1 and 15-2 (see pages 174 and 175).

Future conditions may change the financial analysis. Contingencies that could change the financial analysis include:

- alterations in schedules of currently planned construction for future facilities;
- changes in economic conditions, including changes in interest rates and in SWP contractor entitlements due to changes in amounts of water needed, conserved, or reclaimed:
- completion of Delta transfer facilities;
- development of additional sources of water not foreseen at this time;
- deviations from the assumptions regarding actual rates of price escalations for future construction from those currently assumed for cost estimates;
- enlargement of the San Luis Canal;
- increases in capital costs related to additional conservation facilities; and
- outcomes of lawsuits now pending before the courts.

#### **Capital Requirements and Financing**

In conducting the current analysis, the Department projected that future construction and Davis-Grunsky Act Program costs through the year 2010 will total \$400 million. Special capital requirements for revenue bond financing of these construction costs are projected at \$58 million for a total capital requirement of \$458 million. This projection includes construction and financing costs for the following

significant SWP facilities planned for completion by 2010:

- · Suisun Marsh Facilities;
- North and south Delta facilities;
- Gorman Creek Channel modifications on the West Branch of the California Aqueduct; and
- Extension of the East Branch of the California Aqueduct.

Most of these capital requirements will be financed from the projected sale of \$391 million of revenue bonds. The remaining \$67 million will be financed from current bond proceeds, capital resources revenues, and the transfer of excess revenues not needed for operation costs, debt service, or repayment of the California Water Fund.

The analysis of capital requirements and financing presented in Table 15-1 does not include the costs and financing of all facilities needed to develop the remaining yield necessary to meet the total 4.2 million acre-feet contractual commitment to long-term SWP water contractors. Also, Table 15-1 does not include costs of associated works that are essential for realizing full benefits from the SWP but are financed and constructed by local interests or State agencies other than the Department of Water Resources. Those facilities include on-shore recreational developments at SWP facilities and local distribution facilities.

The allocation of capital expenditures among various SWP purposes is detailed in Table 15-3.

#### **Capital Requirements**

Lines 1 through 19 in Table 15-1 show actual and projected SWP capital requirements through 2010. Estimates of future capital expenditures include allowances for escalation of costs from 1997 through 2010 at 3 percent per year for construction costs and 4 percent per year for right-of-way costs. Capital

Table 15-1
Capital Requirements and Financing, June 30, 1997
(Thousands of dollars)

					Calendar year								Calend	ar vear			
Line																Total	Total
Number Line Item	1952-1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	1996-2010	1952-2010
CAPITAL REQUIREMENTS																	
Initial Project Facilities	2,202,316	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,202,316
2. North Bay Aqueduct, Phase II	90,501	128	566	1,108	0	0	0	0	0	0	0	0	0	0	0	1,802	92,303
3. Delta & Suisun Marsh Facilities	225,502	6,778	17,640	31,642	32,049	13,131	9,326	360	360	0	0	0	0	0	0	111,286	336,788
4. Final 4 Units at Banks Delta Pumping Plant	43,673	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43,673
5. Coastal Branch Aqueduct, Phase II	427,883	52,180	598	101	0	0	0	0	0	0	0	0	0	0	0	52,879	480,762
6. West Branch Aqueduct	187,648	187	8,787	0	0	0	0	0	0	0	0	0	0	0	0	8,974	196,622
7. East Branch Enlargement	444,600	7,081	1,360	0	0	0	0	0	0	0	0	0	0	0	0	8,441	453,041
8. East Branch Improvements	130,184	1,724	29	0	0	0	0	0	0	0	0	0	0	0	0	1,753	131,937
9. East Branch Extension	2,000	2,000	23,620	23,620	0	0	0	0	0	0	0	0	0	0	0	49,240	51,240
10. Power Generation and Transmission Facilities	660,854	3,843	3,020	3,008	3,000	3,000	0	0	0	0	0	0	0	0	0	15,871	676,725
11. Additional Conservation Facilities	140,895	7,463	5,665	15,399	18,159	9,446	6,446	6,392	3,113	3,113	3,113	3,113	3,113	3,113	3,113	90,761	231,656
12. San Joaquin Drainage Facilities	46,814	2,638	2,677	2,758	2,840	2,883	2,883	2,883	2,883	2,883	2,883	2,883	2,883	2,883	2,883	39,743	86,557
13. Other Costs	275,544	9,029	5,919	1,508	873	382	383	0	0	0	0	0	0	0	0	18,094	293,638
14. TOTAL PROJECT CONSTRUCTION EXPENDITU	RES 4,878,414	93,051	69,881	79,144	56,921	28,842	19,038	9,635	6,356	5,996	5,996	5,996	5,996	5,996	5,996	398,844	5,277,258
15. Davis-Grunsky Act Program Costs	128,674	1,326	0	0	0	0	0	0	0	0	0	0	0	0	0	1,326	130,000
16. Special Capital Requirements Under																	
Revenue Bond Financing	549,131	12,907	8,200	18,829	0	10,800	0	7,650	0	0	0	0	0	0	0	58,386	607,517
17. TOTAL CAPITAL REQUIREMENTS	5,556,219	107,284	78,081	97,973	56,921	39,642	19,038	17,285	6,356	5,996	5,996	5,996	5,996	5,996	5,996	458,556	6,014,775
18. Power Facilities Capital Requirements	1,234,094	8,687	4,367	3,008	3,000	3,000	0	0	0	0	0	0	0	0	0	22,062	1,256,156
19. Water Facilities Capital Requirements	4,322,125	98,597	73,714	94,965	53,921	36,642	19,038	17,285	6,356	5,996	5,996	5,996	5,996	5,996	5,996	436,494	4,758,619
FINANCING OF CAPITAL REQUIREMENTS																	
Power Revenue Bond Proceeds																	
20. Power Revenue Bonds through Series H	1,162,274	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,162,274
Water Revenue Bond Proceeds																	
21. East Branch Enlargement, Current Bonds	463,383	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	463,383
22. East Branch Enlargement, Future Bonds	0	19,765	0	0	0	0	0	0	0	0	0	0	0	0	0	19,765	19,765
23. Water System Facilities, Current Bonds	1,226,156	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,226,156
24. Water System Facilities, Future Bonds	0	71,400	80,000	100,000	0	70,000	0	50,000	0	0	0	0	0	0	0	371,400	371,400
25. SUBTOTAL, WATER REVENUE BONDS	1,689,539	91,165	80,000	100,000	0	70,000	0	50,000	0	0	0	0	0	0	0	391,165	2,080,704
Other Capital Financing																	
26. Initial Project Facilities Bond Proceeds	1,480,448	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,480,448
27. Davis-Grunsky Act Program Bond Proceeds	100,678	1,326	0	0	0	0	0	0	0	0	0	0	0	0	0	1,326	102,004
28. Application of California Water Fund Monies																	
(Tideland Oil Revenues)	507,802	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	507,802
29. Interim Financing	10,405	12,155	(7,919)	(8,027)	50,921	(34,858)	14,538	(37,215)	0	0	0	0	0	0	0	(10,405)	0
30. Application of Capital Resources Revenues																	
to Construction	554,631	0	0	0	0	0	0	0	1,856	1,496	1,496	1,496	1,496	1,496	1,496	10,832	565,463
31. Revenue Transfers Applied	50,442	2,638	6,000	6,000	6,000	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	65,638	116,080
32. SUBTOTAL, OTHER CAPITAL FINANCING	2,704,406	16,119	(1,919)	(2,027)	56,921	(30,358)	19,038	(32,715)	6,356	5,996	5,996	5,996	5,996	5,996	5,996	67,391	2,771,797
33. TOTAL FINANCING OF CAPITAL REQUIREMEN	5,556,219	107,284	78,081	97,973	56,921	39,642	19,038	17,285	6,356	5,996	5,996	5,996	5,996	5,996	5,996	458,556	6,014,775

Table 15-2
State Water Project Revenues and Expenditures, June 30, 1997
(Thousands of dollars)

Line					Calenda	r year							С	alendar year				
Number	Line Item	1952-1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	1997-2010	1952-2010
Pi	roject Revenues																	
1. Capita	l resources revenues	801,836	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	801,836
w	later Contractor Payments																	
<ol><li>Transp</li></ol>	portation capital	2,339,384	129,285	137,871	140,391	144,179	146,478	146,488	146,488	146,486	146,488	145,390	146,326	146,329	146,334	146,329	2,014,862	4,354,246
<ol><li>Transp</li></ol>	portation minimum	2,751,335	212,714	226,330	221,590	224,582	221,802	222,419	211,595	208,543	219,221	220,090	217,114	237,496	238,648	237,389	3,119,533	5,870,868
4. Transp	portation variable	1,068,386	55,346	89,523	91,730	87,958	84,017	116,575	114,524	123,596	103,631	106,630	103,959	107,435	107,684	107,477	1,400,085	2,468,471
5. Delta V	Nater Charge	1,160,495	90,706	93,570	97,799	101,463	103,074	104,237	107,776	108,813	109,276	109,530	109,985	110,243	110,474	110,709	1,467,655	2,628,150
6. East B	ranch Enlargement payments	199,018	40,017	39,937	41,563	42,508	42,495	42,220	42,179	40,741	40,731	40,734	41,535	40,583	40,646	40,710	576,599	775,617
7. Water	Revenue Bond Surcharge	113,013	40,919	50,920	51,643	52,084	51,707	52,534	52,174	53,656	53,353	53,084	50,618	56,104	56,216	56,319	731,331	844,344
8. Subtot	tal water contractor payments	7,631,631	568,987	638,151	644,716	652,774	649,573	684,473	674,736	681,835	672,700	675,458	669,537	698,190	700,002	698,933	9,310,065	16,941,696
9. Reven	ue bond cover adjustments	(25,390)	(28,356)	(36,754)	(38,584)	(39,294)	(39,698)	(39,631)	(39,474)	(37,016)	(36,836)	(38,451)	(38,408)	(38,268)	(43,063)	(43,088)	(536,917)	(562,307)
	nanagement adjustments	0	(14,000)	(17,000)	(32,000)	(33,000)	(40,500)	(40,500)	(40,500)	(40,500)	(40,500)	(40,500)	(40,500)	(40,500)	(40,500)	(40,500)	(501,000)	
О	ther Revenues																	
11. Federa	al payments for project operating costs	137,084	10,899	10,525	10,159	9,340	9,340	9,340	9,340	9,340	9,340	9,340	9,340	9,340	9,340	9,340	134,323	271,407
12. Approp	oriations for operating costs allocated to																	
recrea		16,657	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	- ,
13. Davis-	Grunsky loan repayments	35,664	2,200	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	20,400	56,064
	ue Bond Proceeds	457,452	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	457,452
15. Interes	st Earnings on Operating Revenue	425,172	7,310	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	85,310	510,482
16. Oroville	e-Thermalito payments	249,280	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	249,280
17. Miscell	laneous revenues	92,610	61,369	2,280	0	0	0	0	0	0	0	0	0	0	0	0	63,649	156,259
18. Subtot	al, other revenues	1,413,919	81,778	20,205	17,559	16,740	16,740	16,740	16,740	16,740	16,740	16,740	16,740	16,740	16,740	16,740	303,682	1,717,601
	pperating revenues	9,020,160	608,409	604,603	591,691	597,221	586,116	621,082	611,503	621,060	612,104	613,248	607,370	636,162	633,179	632,086	8,575,830	17,595,990
20. Total o enues	perating revenues and Capital Resources Rev	9,821,996	608,409	604,603	591,691	597,221	586,116	621,082	611,503	621,060	612,104	613,248	607,370	636,162	633,179	632,086	8,575,830	18,397,826
D	roject Expenses																	
	t operations, maintenance, and power costs	3,745,039	295,453	314,311	309,366	306,564	20E 449	336,254	337,990	340,952	325,676	333,079	322,997	330,056	330,269	328,084	4,516,469	8,261,508
				314,311 0			305,418				323,676							
	its to Replacement Reserves	93,650	0	Ü	7 700	0 0 4 5	0	0	0	0	ŭ	(4.042)	0	0 250	0	7.054	00.570	93,650
	its to special reserves	492,993	16,298	18,574	7,729	9,945	2,364	2,879	1,370	2,845	3,348	(1,913)	2,288	9,256	5,945	7,651	88,578	
24. Capita	I resources expenditures	554,631	0	Ü	0	0	Ü	0	0	1,856	1,496	1,496	1,496	1,496	1,496	1,496	10,832	565,463
	ayments of Debt Service pal repayments on bonds sold through																	
	30, 1997 (current bonds)	1,090,305	76,281	79,884	83,181	86,855	90,609	94,625	89,970	94,455	105,520	110,090	115,925	136,660	144.146	151,315	1,459,516	2,549,821
	st on bonds sold through	1,000,000	70,201	75,004	00,101	00,000	30,003	34,020	00,070	54,400	100,020	110,000	110,020	100,000	144,140	101,010	1,400,010	2,040,021
	30, 1997 (current bonds)	3,536,593	183,439	178,513	174,290	169,837	165,198	159,926	154,774	150,001	145,107	139,545	133,714	127,740	120,372	112,589	2,115,045	5,651,638
	East Branch enlargement bond principal	3,330,333	100,400	170,515	174,230	103,037	103,130	133,320	154,774	130,001	143,107	100,040	155,714	127,740	120,512	112,505	2,110,040	3,031,030
repayr	- · · · · · · · · · · · · · · · · · · ·	0	0	0	270	285	300	310	320	335	355	370	385	400	420	440	4,190	4,190
	East Branch enlargement bond interest	· ·	O	Ü	210	200	000	010	020	000	000	0/0	000	400	420	440	4,100	4,100
payme	S .	0	0	0	960	948	936	924	910	894	878	862	844	827	808	789	10,580	10,580
	Water Bond principal repayments	0	0	40	1,650	2,625	2,770	3,590	3,795	4,565	4,830	5,095	5,390	5,700	6,020	6,360	52,430	
	Water Bond interest payments	0	0	280	8,245	14,162	14,021	18,074	17,874	20,656	20,394	20,123	19,830	19,527	19,203	18,862		211,251
31. Total I		1,090,305	76,281	79,924	85,101	89,765	93,679	98,525	94,085	99,355	110,705	115,555	121,700	142,760	150,586	158,115		
	•		183,439															
32. Total I		3,536,593		178,793	183,495	184,947	180,155	178,924	173,558	171,551	166,379	160,530	154,388	148,094	140,383	132,240		5,873,469
33. Subtot	tal Debt Service	4,626,898	259,720	258,717	268,596	274,712	273,834	277,449	267,643	270,906	277,084	276,085	276,088	290,854	290,969	290,355		
34. Total (	Operating Expenses and Debt Service	9,513,211	571,471	591,602	585,691	591,221	581,616	616,582	607,003	616,559	607,604	608,748	602,869	631,662	628,679	627,586	8,468,891	17,982,102
35. Net Sy	stem Revenues	308,785	36,938	13,000	6,000	6,000	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	106,939	415,724
	pplication of Net System Revenues																	
	nia Water Fund Repayment	258,343	34,300	7,000	0	0	0	0	0	0	0	0	0	0	0	0	41,300	
37. Reven	ues used for capital expenditures	50,442	2,638	6,000	6,000	6,000	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	65,638	116,080

Table 15-3
Allocation of Capital Expenditures

(Thousands of Dollars)

				Preliminary Allocation Among Project Po			
Facilities and Construction Divisions	Expenditures Incurred Through1996	Future Expenditures	Total	Water Supply and Power Generation	Flood Control (a	Recreation and Fish and Wildlife Enhancement	Other (k
Project Construction Expenditures							
Upper Feather Division	17,926	0	17,926	1,373	0	16,553	0
Oroville Division	563,763	337	564,100	474,759	70,661	18,680	0
Delta Facilities Division	289,408	111,286	400,694	355,106	0	45,588	0
North Bay Aqueduct	94,465	1,802	96,267	96,267	0	0	0
South Bay Aqueduct	80,178	163	80,341	58,650	7,538	14,153	0
California Aqueduct:							
North San Joaquin Division	258,158	13,111	271,269	261,950	0	9,319	0
San Luis Division	248,281	476	248,757	236,953	0	11,804	0
South San Joaquin Division	305,081	459	305,540	288,946	0	16,594	0
Tehachapi Division	325,275	215	325,490	307,295	0	18,195	0
Mojave Division	388,213	3,458	391,671	354,621	0	37,050	0
Santa Ana Division	239,793	8,853	248,646	217,170	0	31,476	0
West Branch	531,175	8,974	540,149	506,700	0	33,449	0
Coastal Branch	426,453	51,590	478,043	478,043	0	0	0
Subtotal, California Aqueduct	2,722,429	87,136	2,809,565	2,651,678	0	157,887	0
Other Project Facilities							
Small Hydroelectric Power							
Generating Facilities	85,698	871	86,569	86,569	0	0	0
Off-Aqueduct Power Generating				0			
Facilities	443,215	15,000	458,215	458,215	0	0	0
East Branch Enlargement	444,600	8,441	453,041	453,041	0	0	0
East Branch Extension	2,000	49,240	51,240	51,240	0	0	0
Coastal Branch Extension	27,111	1,289	28,400	28,400	0	0	0
San Joaquin Drainage Facilities	53,329	39,743	93,072	0	0	0	93,072
Planning and Preoperations	53,987	81,685	135,672	135,672	0	0	0
Unassigned	305	1,851	2,156	0	0	0	2,156
Subtotal, Project Construction							
Expenditures	4,878,414	398,844	5,277,258	4,850,970	78,199	252,861	95,228
Other Capital Requirements							
Davis-Grunsky Act Program	128,674	1,326	130,000	0	0	0	130,000
Total Capital Expenditures	5,007,088	400,170	5,407,258	4,850,970	78,199	252,861	225,228

a) Reflects the Department's allocation to this purpose, irrespective of federal payments.

b) Includes costs currently unassigned to purpose, planning costs of deleted features of project facilities, initial costs of inventoried items, joint costs assigned to the federal government, and costs assigned to the Davis-Grunsky Act Program.

expenditures for the SWP also include requirements other than those for construction, such as disbursements made as part of the Davis-Grunsky Act Program (Line 15) and special capital requirements under revenue bond financing (Line 16). The Department will decide to construct facilities only after examining alternatives and completing environmental documentation and other review processes.

Line 1, Initial Project Facilities, includes only those facilities completed before 1974 (see Bulletin 132-74, Chapter 2). Additional costs after 1973 and estimated costs of remaining work on the initial SWP facilities are not included.

Line 2, North Bay Aqueduct, Phase II, consists of pipelines, pumping plants, and a small reservoir necessary to divert water from the western Delta to Napa and Solano counties for urban use. Phase II is connected with the Phase I facilities and was completed in 1968 (Phase I costs are included in the initial project facilities discussed in Line 1). Phase II became operational in May 1988.

Line 3, Delta and Suisun Marsh Facilities, shows historical costs in Column 1 that include planning costs for general Delta facilities and historical costs associated with the previously planned Peripheral Canal and overland water delivery facilities for the western Delta.

Also included are historical planning costs for Suisun Marsh as well as construction costs for the Suisun Marsh Salinity Control Gates and an access road. The projected amounts include projected planning costs plus projected costs for constructing four permanent barriers in the Delta and an additional intake at Clifton Court Forebay.

Line 4, Final Four Units at Banks Pumping Plant, includes costs of the final four 1,067-cfs units, which became operational in spring 1992, and final payments for plant equipment.

Line 5, Coastal Branch Aqueduct, Phase II, includes all costs for the planning, design, and construction of Phase II of the Coastal Branch of the California Aqueduct. The first major construction contract for Phase II facilities was awarded in October 1993.

Phase II construction is scheduled to be completed in July 1997 at a cost of \$481 million.

Line 6, West Branch Aqueduct, shows costs for all facilities on the West Branch except Warne Powerplant. Warne Powerplant costs are included in Line 10. Projected costs include approximately \$8.6 million for Gorman Creek channel modifications.

Line 7, East Branch Enlargement, includes expenditures for first-stage construction of the East Branch Enlargement, including the enlargement share of power plant costs at Mojave Siphon and Devil Canyon. (The remaining power plant costs are included in Line 10.) Estimated East Branch Enlargement costs by facility are presented in Table 15-4. Costs for Alamo Powerplant consist of expenditures for Unit 1 facilities allocated to enlargement. Construction of Unit 2 has been deferred.

All costs in Line 7 are allocated to and repaid by the seven Southern California contractors participating in the East Branch Enlargement.

Line 8, East Branch Improvements, shows all aqueduct costs on the East Branch not allocated to the enlargement project. Those costs include improvements constructed concurrently with the enlargement work and the reconstruction of the San Bernardino Tunnel Intake. Costs for power plant construction at Mojave Siphon and Devil Canyon are not included in this line.

Line 9, East Branch Extension, shows projected expenditures for Phase I of the proposed extension of the East Branch of the California Aqueduct. The East Branch Extension would extend the California Aqueduct east from the Devil Canyon Powerplant to a terminus at Noble Creek near Beaumont, Riverside County. The extension will provide water service to the San Gorgonio Pass Water Agency and the San Bernardino Valley Municipal Water District. All costs in Line 9 will be allocated to and repaid by the two participating contractors.

Line 10, Power Generation and Transmission Facilities, does not include the East Branch Enlargement share of costs for Devil Canyon and Mojave Siphon power plants shown in Line 7 of Table 15-1. Esti-

mated capital costs for facilities included in Line 10 are shown in Table 15-5.

Line 11, Additional Conservation Facilities, shows projected costs for financial analysis and planning additional conservation facilities. Line 11 includes estimated CALFED program costs for 1998 through 2000 for preliminary planning and environmental impact report preparation. Specific planning activities and projected spending amounts for 1997 through 2010 are shown in Table 15-6. Expenditures for these items are being reviewed. Construction costs of additional conservation facilities are not included in the financial analysis.

Line 12, San Joaquin Drainage Facilities, includes projected costs of the San Joaquin Valley Drainage Monitoring Program. The activities in this program are monitoring, evaluating, reducing, and treating drainage; and investigating evaporation ponds.

The Department assumes that future costs of the drainage program will be financed by revenue transfers (Line 31).

Line 13, Other Costs, includes items such as general design and construction costs, costs of completing operation and maintenance facilities, and costs of other completion activities for the initial facilities of the California Aqueduct. Portions of those costs ultimately will be allocated to aqueduct units described in the preceding paragraphs.

*Line 14, Total Project Construction Expenditures*, is the total of Lines 1 through 13.

Line 15, Davis-Grunsky Act Program Costs, shows costs of the Davis-Grunsky Act Program, a financial assistance program to provide grants and loans to public agencies for constructing local water projects.

As of December 31, 1996, the Department had disbursed \$129 million (including \$8.5 million for administration) in grants and loans for local agencies throughout the State. Funds for Department projects currently authorized will be disbursed prior to 1998.

Line 16, Special Capital Requirements under Revenue Bond Financing, presents special capital requirements at the time revenue bonds are sold. The

financial analysis assumes that proceeds from any future revenue bonds will be used to pay for bond discounts, bond issuance costs, and debt service reserve requirements.

Information about the application of proceeds to these special requirements for actual and assumed revenue bond sales is presented in Table 15-7.

*Line 17, Total Capital Requirements*, is the total of Lines 14, 15, and 16.

Line 18, Power Facilities Capital Requirements, shows the total capital requirements for power facilities included in Lines 1 through 13 and that part of Line 16 associated with revenue bonds sold for power facilities.

Line 19, Water Facilities Capital Requirements, shows the total capital requirements for water facilities included in Lines 1 through 13 and that part of Line 16 associated with revenue bonds sold for water facilities.

#### **Capital Financing**

The State Water Project was constructed with three general types of financing: Burns-Porter, revenue bonds, and capital resources. Lines 20 through 33 of Table 15-1 present specific information about those sources of financing.

Burns-Porter Act. Burns-Porter financing is derived from the sale of California Water Resources Development Bonds (general obligation bonds) and State Tideland Oil Revenues deposited in the California Water Fund as authorized by the Burns-Porter Act (Water Code sections 12930-12944), approved by voters in November 1960. The Burns-Porter Act authorized an issue of \$1.75 billion of general obligation bonds of the State, which are repaid by revenues received according to the water supply contracts. Of that authorization, \$130 million has been reserved specifically for the Davis-Grunsky Act Program.

Proceeds from the sale of general obligation bonds are deposited in the California Water Resources Development Bond Fund-Bond Proceeds Account, from which moneys may be expended only for the construction of SWP facilities and for the Davis-

Table 15-4
Estimated Costs for East Branch
Enlargement

Facility	Dollar Amounts (in millions)
Aqueduct and siphons Pearblossom Pumping Plant Alamo Powerplant Mojave Siphon Powerplant Devil Canyon Powerplant and Second Afterbay	\$127.8 70.0 5.0 47.3
Total	453.0

Table 15-5
Estimated Capital Costs for Power
Generation and Transmission Facilities

Facility	Dollar Amounts (in millions)
Power Plants	
Reid Gardner, Unit 4	\$280.8
Bottle Rock	120.9
South Geysers	49.6
Devil Canyon	36.8
Warne	84.5
Alamo	44.8
Mojave Siphon	27.6
Thermalito Diversion Dam	14.1
Subtotal	\$659.1
Transmission Lines	
Midway-Wheeler Ridge	\$ 10.7
Geysers-Lakeville	6.9
Total	\$676.7

Table 15-6
Estimated Costs for Planning
Additional Conservation Facilities

Activity	Project Expenditures (in millions)
Future Water Supply CALFED Planning Other Planning Costs	\$72.2 9.0 9.6
Total	\$90.8

Table 15-7
Application of Revenue Bond Proceeds

(Millions of Dollars)

	Application of Revenue Bond Proceeds								
			Other Ca	apital Require	ements				
Bond Series (a	Construction Expenditures	Reimbursement of General Fund	Capitalized Interest	Capitalized Operating Costs	Bond Discount and Financing Costs (b	Subtotal	Total Principal Amount of Bonds		
Oroville	218.0	2.6	19.9	1.5	3.0	27.0	245.0		
Devil Canyon-Castaic	126.4	0.0	10.0	0.7	2.1	12.8	139.2		
Pyramid Series A	74.0	0.0	19.2	1.0	1.6	21.8	95.8		
Reid Gardner Series B	146.1	0.0	41.9	0.0	12.0	53.9	200.0		
Reid Gardner Series C	91.1	0.0	17.9	7.9	8.1	33.9	125.0		
Small Hydro-South Geysers Series D	49.6	0.0	19.9	0.0	5.5	25.4	75.0		
Bottle Rock Series E	96.9	0.0	22.0	3.7	2.4	28.1	125.0		
Alamo-South Geysers Series F	59.1	0.0	14.2	0.0	1.7	15.9	75.0		
Reid Gardner Series G	1.6	0.0	0.0	0.0	237.9 (c	237.9	239.5		
Power Facilities Series H	22.2	0.0	0.0	0.0	184.5 (d	184.5	206.7		
East Branch Enlargement Series A	108.3	0.0	12.6	0.0	11.1	23.7	132.0		
Water System Facilities Series B	97.4	0.0	0.0	0.0	2.6	2.6	100.0		
Water System Facilities Series C	0.6	0.0	0.0	0.0	8.4 (e	8.4	9.0		
Water System Facilities Series D	95.9	0.0	2.9	0.0	1.2	4.1	100.0		
Water System Facilities Series E	0.4	0.0	0.0	0.0	8.6 (f	8.6	9.0		
Water System Facilities Series F	0.0	0.0	0.0	0.0	160.0./~	160.0	160.0		
Water System Facilities Series F	0.0	0.0			160.0 (g	160.0			
Water System Facilities Series G	86.8	0.0	4.6	0.0	8.6	13.2	100.0		
Water System Facilities Series H	85.5	0.0	5.7	0.0	8.8	14.5	100.0		
Water System Facilities Series I	158.9	0.0	5.8	0.0	15.3	21.1	180.0		
Water System Facilities Series J	0.0	0.0	0.0	0.0	649.8 (h	649.8	649.8		
Water System Facilities Series K	88.6	0.0	3.1	0.0	8.3	11.4	100.0		
Water System Facilities Series L	0.0	0.0	0.0	0.0	537.8 (i	537.8	537.8		
Water System Facilities Series M	166.3	0.0	9.9	0.0	13.8	23.7	190.0		
Water System Facilities Series N	137.4	0.0	6.0	0.0	8.6	14.6	152.0		
Water System Facilities Series O	156.5	0.0	8.4	0	170.1 (j	178.5	335.0		
Water System Facilities Series P	141.6	0.0	5.2	0	13.2	18.4	160.0		
Water System Facilities Series Q	135.0	0.0	8.0	0	123.6 (k	131.6	266.6		
Water System Facilities Series R	0.0	0.0	0.0	0	20.7 (1	20.7	20.7		
Subtotal	2,344.2	2.6	237.2	14.8	2,229.3	2,483.9	4,828.1		
Future Water System Facilities Bonds	315.8	0.0	22.5	0.0	33.0	55.6	371.4		
Future East Branch Enlargement Bonds	17.0	0.0	1.3	0.0	1.5	2.8	19.8		
Grand Total	2,677.0	2.6	261.0	14.8	2,263.9	2,542.3	5,219.3		

a) Actual bond issue for all except Future Water System facilities and Future East Branch Enlargement bonds.

b) Bond discount and financing costs include debt service reserves for East Branch Enlargement and Water System Facilities bonds.

c) Total discount was \$2.8 million; remaining amount was used to refund Reid Gardner Series B bonds.

d) Total discount was \$2.7 million; remaining amount was used to refund portions of Reid Gardner Series C and Small Hydro-South Geysers Series D bonds.

e) Includes funds applied to Water System Facilities Series B and C debt service reserves.

f) Includes funds applied to Water System Facilities Series D and E debt service reserves.

g) Includes \$11.0 million for debt service reserves and \$9.0 million for discounts; remaining amount was used to refund a portion of Reid Gardner Series G bonds.

h) Includes \$26.3 million for debt service reserves and \$20.5 million for discounts; remaining amount was used to refund portions of prior issues of Power Facilities Revenue Bonds and Water System Revenue Bonds.

i) Includes \$11.1 million for discounts; remaining amount was used to refund portions of prior issues of PFRB and WSRB bonds.

j) Includes \$18.1 million for debt service reserves and \$6.9 million for discounts; remaining amount was used to refund all WSRB Series N bonds.

k) Includes \$13.5 million for debt service reserves and \$3.0 million for discounts; remaining amount was used to refund portions of prior issues of WSRB bonds.

I) Includes \$0.5 million for bond discount; remaining amount was used to refund all WSRB Series C and E bonds.

Grunsky Act Program. Approximately 32 percent of the expenditures through 1996 for construction and the Davis-Grunsky Act Program were financed with general obligation bonds.

Moneys deposited in the California Water Fund are appropriated for purposes outlined in the Burns-Porter Act. Such deposits are derived from a portion of the State Tideland Oil Revenues according to a continuing authorization. In 1989, legislation was enacted to provide for a schedule to repay the California Water Fund as required by the Burns-Porter Act.

**Revenue Bonds.** Revenue bond financing is derived from the sale of revenue bonds as authorized by the Central Valley Project Act (California Water Code sections 11100-11925). The Department's authority to issue revenue bonds was confirmed by a decision of the California Supreme Court in 1963 (*Warne v. Harkness*, 60 Cal. 2d 579).

Proceeds from the sale of revenue bonds are deposited in the Central Valley Water Project Construction Fund, from which money is expended only for purposes specified in the resolution authorizing each bond sale. Those purposes, in addition to paying construction, planning, and right-of-way costs, may include funding the Debt Service Reserve Account, paying interest on bonds, and paying water system operating expenses during a specified period.

As of June 30, 1997, the Department had sold \$4.8 billion of revenue bonds. That amount includes \$267 million of Water System Revenue Bonds, Series Q, sold November 5, 1996, and \$20.7 million of Water System Revenue Bonds, Series R, sold March 11, 1997. Additional issues of revenue bonds are planned to fund future SWP construction.

Capital Resources. Capital resources financing is derived from payments and appropriations (including a portion of Tideland Oil Revenues) authorized by a variety of special contracts, cost-sharing agreements, and legislative actions concerning the SWP, plus accrued interest on these funds.

Capital resources revenues are deposited in the Central Valley Water Project Construction Fund and may

be expended for paying interest on general obligation bonds and costs of constructing SWP facilities.

According to the Department's financial management policy, the capital resources revenues are used first to cover any general obligation bond debt service that exceeds available revenues.

#### **Capital Financing Sources**

Capital financing sources include power revenue bonds, East Branch Enlargement bonds, water system facilities bonds, initial project facilities bonds, proceeds from the Davis-Grunsky Act, California Water Fund moneys, and capital resources revenues.

Line 20, Power Revenue Bonds through Series H, includes the proceeds applied from power revenue bonds for the Oroville, Devil Canyon, Castaic, Warne, Reid Gardner, Bottle Rock, Alamo, South Geysers, and small hydro projects.

No future power revenue bond sales are projected for the financial analysis.

Line 21, East Branch Enlargement, Current Bonds, shows that \$463 million of Water System Revenue Bond proceeds have been applied to the East Branch Enlargement project through June 30, 1997. Of this total amount, \$404 million was used for construction expenditures and \$59 million for bond discounts, interest costs, and debt service reserves.

Line 22, East Branch Enlargement, Future Bonds, shows the Department's estimate of additional bonds required to complete construction of the East Branch Enlargement, first stage, and to pay for bond discounts, capitalized interest, and debt service reserve requirements.

Line 23, Water System Facilities, Current Bonds, shows that through June 30, 1997, \$1.2 billion of proceeds from Water System Revenue Bonds, Series A through Series R, were applied to SWP projects other than the East Branch Enlargement. Of this total amount, \$1.0 billion was used to pay for construction expenditures and \$166 million to pay for bond discounts, capitalized interest, and debt service reserve requirements.

Line 24, Water System Facilities, Future Bonds, shows that future water revenue bonds are needed to provide \$316 million for construction of SWP water system facilities and \$56 million for bond discounts, interest costs, and debt service reserve requirements.

*Line 25, Subtotal, Water Revenue Bonds*, is the total of Lines 21 through 24.

Line 26, Initial Project Facilities Bond Proceeds, shows the amount of general obligation bonds sold to provide initial financing costs for SWP facilities and for costs of planning certain additional conservation facilities.

Financing initial facilities from general obligation bonds was completed in mid-1972 and totaled \$1.444 billion—\$1.750 billion Burns-Porter Act authorization less \$130 million reserved for the Davis-Grunsky Act Program and \$176 million "offset" for additional conservation facilities. (The Burns-Porter Act provides that to the extent California Water Fund moneys are expended, an equal amount of general obligation bonds are reserved [offset] for financing the construction of additional conservation facilities in certain watersheds.)

In mid-1972, the reservation of offset bonds was effectively limited to \$176 million, the total amount of California Water Fund moneys expended up to that time. By mid-1972, all general obligation bonds authorized by the Burns-Porter Act had been offset, reserved for the Davis-Grunsky Act Program, or used for SWP construction.

Approximately \$8.5 million of the offset bonds was used to finance planning studies of the Middle Fork Eel River Development. This financial analysis is not based on the use of any offset bond proceeds to meet capital requirements. If at some time the State constructs an additional conservation facility, as specified in Water Code Section 12938, the remaining offset bonds could be sold.

Line 27, Davis-Grunsky Act Program Bond Proceeds, shows, for simplification, the entire \$130 million of capital expenditures authorized for the Davis-Grunsky Act Program according to the Burns-Porter Act as being funded by proceeds from the sale of

general obligation bonds. In fact, \$28 million from the California Water Fund were used for the program in lieu of bond proceeds prior to 1969.

In making the financial analysis, the Department assumes that all authorized Davis-Grunsky bonds will be sold prior to 1998.

Line 28, Application of California Water Fund Monies, shows the amount of SWP costs financed under the Burns-Porter Act, which provides that any available money in the California Water Fund must be used for construction in lieu of proceeds from the sale of general obligation bonds.

When the Burns-Porter Act became effective in late 1960, approximately \$97 million had been accumulated in the fund. That balance plus subsequent appropriations, interest earnings, and other miscellaneous income to the fund through December 31, 1996, was used to finance a total of \$508 million of SWP costs.

Line 29, Interim Financing, shows the net annual amounts of money borrowed from (positive number) or repaid into (negative number) the Water Revenue Commercial Paper Notes program. The note program was established in March 1993 to provide an ongoing source of interim financing for Water System Projects prior to permanent financing from the sale of long-term revenue bonds. The Department has authority to issue up to \$150 million of Water Revenue Commercial Paper Notes. The financial analysis assumes that all outstanding notes will be repaid before the end of the analysis period.

Line 30, Application of Capital Resources Revenues to Construction, presents the Capital Resources Revenues applied for capital expenditures.

Line 31, Revenue Transfers Applied, shows moneys assumed to be transferred to the California Water Fund according to provisions of the Burns-Porter Act and subsequently reappropriated to construction (see Line 37 in Table 15-2). Projected amounts for 1997 through 2010 include funds to finance expenditures for San Joaquin drainage facilities, as indicated in Line 12 of Table 15-1, and expenditures for additional conservation facilities, as indicated in Line 11.

*Line 32, Subtotal, Other Capital Financing*, is the total of Lines 26 through 31.

Line 33, Total Financing of Capital Requirements, totals Lines 20, 25, and 32.

#### **Annual Revenues and Expenditures**

In conducting the financial analysis of SWP operations, the Department concluded that projected payments by contractors and other revenues will be adequate to pay annual operations, maintenance, power, and replacement costs and meet all repayment obligations on funds used to finance SWP construction and other authorized costs during the period 1997 through 2010. Data on annual revenues and expenditures are presented in Table 15-2. A detailed discussion of each line item is presented below.

#### **Project Revenues**

SWP revenues consist primarily of SWP contractor payments required under their individual long-term water supply contracts. Those revenues are deposited in two funds: the Central Valley Water Project Revenue Fund, where all revenues pledged to revenue bonds are placed, and the California Water Resources Development Bond Fund-Systems Revenue Account, where all other SWP operating revenues are placed. Use of those funds is limited to paying operating costs and debt service, except that revenues in excess of those costs may be transferred to the California Water Fund.

Line 1, Capital Resources Revenues, includes:

- federal payments for SWP capital expenditures;
- appropriations for capital costs allocated to recreation;
- appropriations for SWP capital expenditures prior to passage of the Burns-Porter Act and according to Senate Bill 261 (1968);
- payments from Los Angeles Department of Water and Power for Castaic power development:
- advances from water contractors for construction of requested works;
- investment earnings on the Capital Resources Account; and
- investment earnings on unexpended revenue bond proceeds.

Historically, appropriations for capital costs allocated to recreation and fish and wildlife enhancement have amounted to \$5 million per year, which has been appropriated by the California Legislature from Tideland Oil Revenues. According to legislation enacted in 1989, the amount owed to the SWP by the State for costs allocated to recreation and fish and wildlife enhancement is offset against the amount the SWP owes to the California Water Fund.

Lines 2 through 7, Water Contractor Payments, show amounts of the separate elements of water contractor payments.

Amounts in Line 4 also include revenues sufficient to cover costs associated with sales of excess power. Appendix B of this bulletin presents a detailed explanation of payments identified in Lines 2 through 7.

Operations, maintenance, power, and replacement costs are repaid as they are incurred as part of the Transportation Charge; therefore, no interest charges are included. Construction costs included in the Transportation Charge and all construction and annual OMP&R costs included in the Delta Water Charge are to be repaid with interest at the Project Interest Rate.

The Project Interest Rate, as defined in Article 1(r) of the standard provisions for water supply contracts, is the weighted average of the rates paid on securities issued and loans obtained to finance SWP facilities, excluding Oroville Revenue Bonds.

According to the original contract provisions, the basis for determining the Project Interest Rate was the weighted average of rates paid on general obligation bond sales only. In 1969, after Oroville Revenue Bonds were issued, the contract was amended to expand the basis to include rates on all other securities sold and loans obtained thereafter for financing SWP facilities, including revenue bonds (see Bulletin 132-70, page 28).

However, not all proceeds from the sale of revenue bonds are melded into the calculation of the Project Interest Rate. Only those proceeds applied to construction costs (the only application of general obligation bonds permitted by law) and those consumed by the bond discount (a component of the total inter-

est cost of a revenue bond issue) are included in the calculation (see Table 15-8).

Calculations for determining the Project Interest Rate do not include proceeds from the sale of revenue bonds for Off-Aqueduct Power Facilities, the East Branch Enlargement facilities, or water system facilities defined in the Water Revenue Bond Amendment. Table 15-9 lists all bond sales by date and presents basic information used in the calculation of the Project Interest Rate.

Information about contractor water charges in Appendix B is based on known conditions and substantiates the Department's determination of 1998 water charges billed July 1, 1997. However, information about significant differences between the sum of future charges included in Lines 2 through 7 of Table 15-2 and the substantiation of 1998 charges included in Appendix B are as follows:

- Future capital costs in Appendix B are based on the prevailing prices as of December 31, 1996. Those costs presented in the financial analysis include allowances for price escalation.
- Pre-1997 charges in Appendix B represent charges as they should have been according to currently known conditions. Pre-1997 charges included in Table 15-2 are those actually paid as part of previously determined bills.
- Charges in Appendix B are unadjusted for past overpayments or underpayments. Charges included in Table 15-2 for 1997 and thereafter have been adjusted for any apparent overpayments or underpayments of pre-1997 charges.
- Charges in Appendix B for East Branch Enlargement costs include the amounts for debt service and 25 percent cover for the East Branch Enlargement share of the Series A through Series P bonds. Charges in Table 15-2 also include amounts of the debt service and cover for assumed future bonds.

Table 15-8
Effect of Revenue Bond Proceeds on Project Interest Rate
(Millions of Dollars)

	Revenue Bond Proceeds									
Project	Applied to Construction Costs	Less Portion of Proceeds Derived from Interest Earnings Prior to Delivery of Bonds	Plus Bond Discount and Financing Costs	Subtotal, Proceeds Included in Calculating Project Interest Rate	Principal Amount of Bonds	Percentage of Total Amount Included in Calculating Project Interest Rate				
Devil Canyon-Castaic Project Revenue Bonds	125.3	1.5	1.4	125.2	139.2	90.0				
Pyramid Project Revenue Bonds (Series A)	71.2	0.5	1.1	71.8	95.8	75.0				
Alamo Project Bond Anticipation Note	16.8	0.1	0.3	17.0	24.4	70.0				
Small Hydro Project I Revenue Bonds (Series D)	25.4	0.2	1.5	26.7	37.5	71.0				
Alamo Project Revenue Bonds (Series F)	38.9	0.3	0.7	39.3	50.0	79.0				
Power Facilities										
Revenue Bonds (Series H)										
Facility										
Pyramid Project	5.0	0.0	0.1	5.1	5.1	100.0				
Alamo Project	1.7	0.0	0.0	1.7	1.7	100.0				
Small Hydro Project I	25.2 (a	0.2	0.4	25.4	35.6	71.0				
Water System Revenue Bonds (Series J)										
Facility										
Pyramid Project	_	_	75.9	75.9	94.5 (b	76.0				
Alamo Project	_	_	45.6	45.6	57.1 (b	80.0				
Small Hydro Project	_	_	27.5	27.5	38.8 (b	71.0				
Water System Revenue Bonds (Series L)										
Facility										
Small Hydro Project	_	_	1.5	1.5	2.1 (b	71.0				

a) Amount consists of 71 percent of proceeds deposited in escrow account to refund portion of Series C bonds (\$35.1 million plus deposits to construction account (\$0.3 million)).

b) Represents amount of principal used to refund portions of prior bond issues.

**Table 15-9** Actual Bond Sales and Project Interest Rates, by Date of Sale

Actual Bolla Gales and	i roject inte	root riatoo, b	y Date of oa		
				Issue	Project
		Dollar-	Interest	Interest	Interest
	Date of	Years (a	Cost	Rate (b	Rate (c
Bond Sales	Sale	(Thousands)	(Thousands)	(Percent)	(Percent)
Dona Gales	Ouic	(Thousands)	(Thousands)	(i cicciii)	(i cicciii)
# 50 000 000 P	44/04/00	20.044	504	4.074	4.074
\$ 50,000,000 Bond Anticipation Notes	11/21/63	26,944	531	1.971	1.971
\$100,000,000 Series A Water Bonds	2/18/64	3,402,000	119,750	3.520	3.508
\$ 50,000,000 Series B Water Bonds	5/05/64	1,726,000	60,986	3.533	3.516
\$100,000,000 Series C Water Bonds	10/07/64	3,452,000	123,764	3.585	3.544
\$100,000,000 Series D Water Bonds	2/16/65	3,497,900	122,403	3.499	3.531
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\$100,000,000 Series E Water Bonds	11/23/65	3,497,900	130,029	3.717	3.573
\$100,000,000 Series F Water Bonds	6/08/66	3,497,900	137,359	3.927	3.638
\$100,000,000 Series G Water Bonds	11/22/66	3,497,900	143,788	4.111	3.711
\$100,000,000 Series H Water Bonds	3/21/67	3,497,900	129,261	3.695	3.709
\$100,000,000 Series J Water Bonds	7/18/67	3,497,900	143,199	4.094	3.754
\$400,000,000 Onder IV Weter Breeds	44/44/07	0.407.000	400.007	4.005	0.050
\$100,000,000 Series K Water Bonds	11/14/67	3,497,900	163,887	4.685	3.853
\$150,000,000 Revenue Bonds, Oroville Division, Series A	4/03/68	5,228,700	270,289	5.169	
\$100,000,000 Series L Water Bonds	7/11/68	3,497,900	166,918	4.772	3.941
\$100,000,000 Series M Water Bonds	10/22/68	3,497,900	169,989	4.860	4.021
\$ 94,995,000 Revenue Bonds, Oroville Division, Series B	4/01/69	3,423,460	195,902	5.722	
\$ 46,761,000 Cumulative 1970 General Fund Borrowing, repaid 7/10/70	-	4,938	346	7.007	
\$200,000,000 Series N and P Bond Anticipation Notes	6/16/70	200,000	11,660	5.830	4.030
\$100,000,000 Series N Water Bonds	2/02/71	3,447,900	190,292	5.519	4.148
\$100,000,000 Series Q Bond Anticipation Notes	3/10/71	100,000	2,349	2.349	4.143
\$100,000,000 Series P Water Bonds	4/21/71	3,397,900	193,377	5.691	4.255
\$450,000,000,000,000,000,000,000,000,000,	44/00/=4	F 474 050	005 701	F 100	4 0 40
\$150,000,000 Series Q and R Water Bonds	11/09/71	5,171,850	265,734	5.138	4.342
\$ 40,000,000 Series S Water Bonds	3/28/72	1,399,160	76,509	5.468	4.371
\$139,165,000 Devil Canyon-Castaic Revenue Bonds (d	8/08/72	4,776,204	258,839	5.419	4.457
\$ 10,000,000 Series T Water Bonds	3/20/73	185,265	9,491	5.123	4.459
\$ 10,000,000 Series U Water Bonds	1/13/76	158,750	8,731	5.500	4.462
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\$ 10,000,000 Series V Water Bonds	11/15/77	158,750	7,573	4.770	4.462
\$ 95,800,000 Pyramid Hydroelectric Revenue Bonds (d	10/23/79	2,260,072	172,495	7.632	4.584
\$150,000,000 Reid Gardner Project, Series A Bond Anticipation Notes	7/1/81	347,906	29,572	8.500	4.004
\$ 75,600,000 Bottle Rock Project, Bond Anticipation Notes	12/1/81	264,600	25,137	9.500	
\$ 24,400,000 Alamo Project, Bond Anticipation Notes (d	12/1/81	24,266	2,305	9.499	4.589
\$000 000 000 Beid Conders Brainst Codes B Brainst Brains	7/07/00	4 000 407	FF0 700	44.070	
\$200,000,000 Reid Gardner Project, Series B Revenue Bonds	7/07/82	4,623,137	553,793	11.979	
\$125,000,000 Reid Gardner Project, Series C Revenue Bonds	11/16/82	2,720,045	255,744	9.402	
\$ 37,500,000 Small Hydro Project I, Series D Revenue Bonds (d	11/16/82	837,769	84,587	10.097	4.666
\$ 37,500,000 South Geysers Project, Series D Revenue Bonds	11/16/82	930,325	90,021	9.676	
\$125,000,000 Bottle Rock Project, Series E Revenue Bonds	4/27/83	2,624,805	225,102	8.576	
•					
\$ 50,000,000 Alamo Project, Series F Revenue Bonds (d	4/27/83	1,190,763	100,836	8.468	4.727
\$ 25,000,000 South Geysers Project, Series F Revenue Bonds	4/27/83	608,550	52,578	8.640	
\$239,505,000 Reid Gardner Project, Series G Revenue Bonds	3/15/85	4,524,136	425,840	9.413	
\$206,690,000 Power Facilities Series H Revenue Bonds (d	6/20/86	4,430,520	347,745	7.849	4.713
\$132,000,000 East Branch Enlargement, Series A	0/20/00	4,400,020	0-11,11-0	7.040	4.7 10
Water System Revenue Bonds	7/15/86	3,427,165	254,915	7.438	
Water System Nevertue Bonds	1/15/00	3,427,103	204,313	7.430	
\$100,000,000 Series B Water System Revenue Bonds	5/05/87	2,564,012	194,817	7.598	
\$ 9,000,000 Series C Water System Revenue Bonds	12/01/87	324,000	31,995	9.875	
\$100,000,000 Series D Water System Revenue Bonds	6/14/88	2,640,510	201,253	7.622	
\$ 9,000,000 Series E Water System Revenue Bonds	11/29/88	324,000	31,995	9.875	
\$160,030,000 Series F Water System Revenue Bonds	3/15/89	2,779,838	189,261	6.808	
\$100,000,000 Series G Water System Revenue Bonds	3/06/90	2,434,175	172,277	7.077	
\$100,000,000 Series H Water System Revenue Bonds	1/10/91	2,459,172	168,857	6.866	
\$180,000,000 Series I Water System Revenue Bonds	5/14/91	4,366,680	294,090	6.735	
\$649,835,000 Series J Water System Revenue Bonds	1/16/92	12,422,222	745,198	5.999	
\$100,000,000 Series K Water System Revenue Bonds	5/12/92	2,366,783	147,064	6.214	
Trace System November 20165	0/12/02	2,000,700	,	0.211	
\$ 9,000,000 Series W Water Bonds	8/19/92	95,250	6,172	6.480	4.621
\$537,830,000 Series L Water System Revenue Bonds	5/01/93	11,414,859	640,518	5.611	4.620
\$ 2,000,000 Series X Water Bonds	9/01/93	26,000	1,247	4.796	7.020
\$ 1,400,000 Series Y Water Bonds	11/30/94	19,483	1,249	6.411	
\$190,000,000 Series M Water System Revenue Bonds	12/01/93	3,911,846	194,981	4.984	
\$153,000,000 Sorios N. Wotor System Bassansa Banda	3/03/05	2 244 606	122.050	E 470	
\$152,000,000 Series N Water System Revenue Bonds	3/03/95	2,241,606	122,658	5.472	
\$335,000,000 Series O Water System Revenue Bonds	12/05/95	7,528,890	375,667	4.990	
\$160,000,000 Series P Water System Revenue Bonds	5/07/96	3,553,823	204,524	5.755	
\$266,630,000 Series Q Water System Revenue Bonds	11/05/96	5,481,815	299,846	5.470	
\$20,700,000 Series R Water System Revenue Bonds	3/10/97	564,125	36,627	6.493	
•			-	<del></del>	
Total		164,074,069	9,783,922		
Parties allegated to Project Interest Bate		62 064 222	2.050.000	4.600	4 600
Portion allocated to Project Interest Rate		63,864,233	2,950,606	4.620	4.620

a) A unit equivalent to one dollar of principal amount outstanding for one year.
b) The total interest cost (without regard to premiums received) divided by the total dollar-years, expressed as a percent.
c) Determined by dividing cumulative interest costs by cumulative dollar-years, expressed as a percent. Excluding Oroville Field Division, Power Revenue Bonds for Off-Aqueduct Facilities, and Water System Revenue Bonds, which do not affect the Project Interest Rate.
d) These revenue bonds and revenue bond anticipation notes were sold at the following net interests costs. The amounts indicated (representing the sum of proceeds used for construction and the bond discount) were used in the calculations of the Project Interest Rate:

Devil Canyon-Castaic Revenue Bonds:	5.446 percent	\$126,893,000
Pyramid Hydroelectric Revenue Bonds:	7.680 percent	\$75,586,000
Alamo Bond Anticipation Notes:	10.036 percent	\$ 18,034,000
Small Hydro Project I, Series D Revenue Bonds:	10.275 percent	\$ 28,012,000
Alamo Project, Series F Revenue Bonds:	8.525 percent	\$ 40,114,000
Power Facilities, Series H Revenue Bonds:	7.926 percent	\$ 42,340,000

 The water bond revenue surcharge in Appendix B applies only to the Series B through Series R bonds. Surcharge values included in Table 15-2 apply to Series B through Series R bonds and to assumed future issues required to finance any SWP construction.

*Line 8, Subtotal, Water Contractor Payments*, is the total of Lines 2 through 7.

Line 9, Revenue Bond Cover Adjustments, represents the credit to contractors resulting from the cover of 25 percent of 1 year's debt service for Off-Aqueduct Power Facility Bonds and Water System Revenue Bonds. Cover is collected as required by the bond resolutions to provide security to the bondholders.

For off-aqueduct facilities, that amount is charged annually to contractors and collected through the minimum OMP&R component of the Transportation Charge. For the East Branch Enlargement facilities, the cover is collected through the capital component of the East Branch Enlargement Transportation Charge. For water system facilities, that amount is collected through the water bond surcharge. If not needed to meet annual bond service, the cover is credited to the contractors in the following year.

Line 10, Rate Management Adjustments, shows the projected amount of revenue reductions allocated to SWP contractors after repayment of the California Water Fund (see Line 36). Under provisions of the Monterey Agreement, the reduction amount allocated to agricultural contractors is deposited into a trust fund to stabilize payments in water-short years. The urban contractor allocation is applied as a direct reduction in charges.

Line 11, Federal Payments for Project Operating Costs, shows federal payments made according to the December 31, 1961, agreement between California and the United States providing for the Department to operate and maintain the San Luis Joint-Use Facilities. According to the January 12, 1972, supplement to the agreement, the U.S. Bureau of Reclamation initially paid 45 percent of OM&R costs for those activities. (The percentage does not apply to power costs; USBR and the Department provide their own power to pump water through the joint facilities.)

The percentage paid by USBR is reviewed every 5 years by USBR and the Department. For calendar years 1981 through 1986, the federal share of operations and maintenance costs was 44.47 percent. The most recent review of the percentage paid by the USBR was completed in 1987 and resulted in a federal share of 44.09 percent for calendar years 1987 through 1996. The amounts in Line 10 are based on the assumption that the federal share will continue at 44.09 percent for calendar years 1997 through 2010.

Line 12, Appropriations for Operating Costs Allocated to Recreation, shows appropriations made under the Davis-Dolwig Act. In passing the Davis-Dolwig Act, the California Legislature declared its intent that except for funds provided according to Assembly Bill 12 (1966), the Department budget will include appropriations of moneys from the General Fund necessary for enhancement of fish and wildlife and recreation in connection with State water projects.

Annual OMP&R costs allocated to recreation and fish and wildlife enhancement are paid by annual appropriations from the General Fund. For fiscal years 1983-84 through 1995-96, no funds were appropriated for enhancement of fish and wildlife and recreational purposes. No appropriations are indicated for 1997 through 2010.

According to legislation enacted in 1989, the amount owed to the SWP by the State for costs allocated to recreation and to fish and wildlife enhancement is offset against the amount the SWP owes to the California Water Fund.

Line 13, Local Agency Payments under Davis-Grunsky Loan Repayment Contracts, shows the repayments for the \$52.5 million of loans disbursed as of December 31, 1996. Repayment on any future loans was assumed to be beyond the period covered by the financial analysis.

Line 14, Revenue Bond Proceeds, includes bond proceeds classified as special reserves according to the description of revenue bond financing in Line 16 of Table 15-1. Those proceeds, used for capitalized OMP&R costs, revenue bond service, and debt service reserves, are not classified as revenues but are

included in this line to simplify the financial presentation.

Line 15, Interest Earnings on Operating Revenues, includes interest earnings on unexpended proceeds from the sale of general obligation bonds, interest on operating reserves, and other short-term investment earnings on SWP revenues.

Line 16, Payments under Oroville-Thermalito Power Sale Contract, shows payments from Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas and Electric Company. Those utilities purchased all power generation from Hyatt and Thermalito power plants before April 1, 1983, according to a power sale contract dated November 29, 1967. The 1952-1996 entry includes amounts of final settlement of payments made according to the contract.

Line 17, Miscellaneous Revenues, includes all other operating revenues not included in Lines 2 through 16.

*Line 18, Subtotal, Other Revenues*, is the total of Lines 11 through 17.

*Line 19, Total Operating Revenues*, is the total of Lines 8, 9, 10, and 18.

*Line 20, Total Operating Revenues and Capital Resources Revenues*, is the total of Lines 1 and 19.

#### **Project Expenses**

Project expenses include:

- operations, maintenance, and power costs;
- · deposits to replacement reserves;
- · deposits to special reserves;
- · capital resources expenditures; and
- debt service.

Revenue bond proceeds earmarked for debt service during construction and the first year's operating expenses are deposited in the Central Valley Water Project Construction Fund and disbursed according to resolutions authorizing the issuance of such bonds. Water contractor revenues associated with power facility operating costs and debt service are deposited in the Central Valley Water Project Revenue Fund for appropriate disbursement. All other operating revenues deposited in the California Water Revenue Fund-Systems Revenue Account are disbursed according to the following four priorities of use as specified in the Burns-Porter Act:

- 1. SWP operations, maintenance, power, and replacement costs;
- 2. general obligation bond debt service;
- 3. repayment of expenditures from the California Water Fund; and
- 4. deposits to a reserve for future SWP construction.

Project expenses are presented in Lines 21 through 33 of Table 15-2.

Line 21, Project Operations, Maintenance, and Power Costs, shows the OM&P portion of the historical and projected costs presented in Table 15-10 (see page 189).

Table 15-10 and Line 21 of Table 15-2 also include amounts of the operations and maintenance costs for the federal share of joint facilities and those OM&P costs allocated to recreation, which are intended to be offset by revenues indicated in Lines 11 and 12.

Allowances for cost escalations are included in OM&P costs through 1999. Allowances for additional long-term price escalations in the future are not included in these estimates because changes in OM&P costs do not substantially affect the overall results of the financial analysis. (For the most part, changes in OM&P costs cause direct offsetting changes in operating revenues.)

Power costs make up the major item of annual operating expense for the SWP. Assumptions about future power sources and costs are discussed in Chapter 11, "Power Resources." Line 21 also includes costs associated with power transactions that result in the sale of power not required for the delivery of water.

Line 22, Deposits to Replacement Reserves, shows funds set aside as required by contract for replacing existing SWP facilities. As of December 31, 1996, \$40 million had been spent for replacement costs; the balance of the replacement reserve as of that date was \$54 million. Replacement reserve amounts are also included in Table 15-10.

Line 23, Deposits to Special Reserves Under Revenue Bond Financing, includes two significant components: special reserve deposits related to revenue bonds and capital resources revenue carryover from prior years used for construction in the current year. Special reserve deposits are the net of several income and expenditure items. Income items related to revenue bonds are as follows:

- proceeds set aside to pay bond interest during construction (capitalized interest);
- proceeds set aside for first year operating costs (capitalized operations and maintenance);
- water contractor payments or bond proceeds set aside for debt service reserves;
- water contractor payments for revenue bond cover requirements; and
- deposits to and withdrawals from operating reserves to meet day-to-day cash flow requirements.

The 1952-1996 column also includes advances to the Department's revolving fund for working funds to purchase mobile equipment and to meet day-to-day operating expenses.

The expenditure items related to revenue bonds are as follows:

- debt service cover payments returned to water contractors;
- debt service reserve payments returned to water contractors;
- surplus account funds returned to water contractors or applied to meet expenses;
- · total capitalized interest paid out; and
- total capitalized operations and maintenance paid out.

Special reserves, reduced over time as reserved amounts, are used for their respective purposes. The amount indicated each year in Line 23 indicates the

change from the previous year. A negative number indicates a withdrawal of special reserves to meet expenses, while a positive number indicates a deposit.

Line 24, Capital Resources Expenditures, includes the amount of capital resources revenues applied to construction that is shown in Line 30 of Table 15-1. In Table 15-2, these expenditures are funded out of withdrawals from the reserves in Line 23 and do not affect net revenues shown in Line 35.

Lines 25 and 26, Payment of Debt Service on Bonds Sold through June 30, 1997, show the total principal and interest payments on bonds sold to date. Table 15-11 (see page 190) summarizes payments on general obligation bonds (Series A through Y water bonds), power revenue bonds by project, and water system revenue bonds.

The last bonds, sold on March 10, 1997, were the Series R Water System Revenue Bonds. Proceeds from the Series R bonds were used to refinance previously issued bonds and to pay for bond financing costs.

Line 26 also includes over \$0.3 million in interest payments to the General Fund for the temporary loan of \$46.8 million in 1970. That loan was repaid by proceeds from the sale of Series N Water Bond Anticipation Notes.

Lines 27 and 28, Payments on Projected East Branch Enlargement Bonds, include the projected annual service amounts for future water revenue bonds included on Line 22 of Table 15-1 for the East Branch Enlargement. Assumptions about the service on these future bonds are as follows:

- interest costs for the water revenue bonds average 6.0 percent; and
- bonds are to be repaid within 35 years of sale with maturities commencing in the year following the date of sale and with equal annual bond service for the principal repayment period.

Lines 29 and 30, Payments on Projected Future Water Bonds, include amounts of the projected annual service for future water revenue bonds included on Line 24 of Table 15-1 for water system

Table 15-10
Operations, Maintenance, Power, and Replacement Costs, by Facility, Composition, and Purpose (Thousands of dollars)

					Na la mala :: : : -								0-11				
Facture	4050 4000	4007	4000		Calendar year	2001	2002	2002	2004	2005	2000	2007	Calenda		2040	2044 2025	TOTAL
Feature	1952-1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011-2035	TOTAL
Project Facility																	
Feather River facilities	115,377	6,018	3,956	4,278	3,295	3,279	3,207	3,205	3,213	3,195	3,197	3,193	3,196	3,196	3,196	76,139	241,140
North Bay Aqueduct	17,107	2,338	2,360	2,334	2,277	2,268	2,339	2,348	2,382	2,343	2,356	2,356	2,373	2,380	2,387	63,135	113,083
Delta facilities	257	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	257
Suisun Marsh	11,205	2,489	2,011	1,915	1,882	2,222	2,222	2,222	2,222	2,222	2,222	2,222	2,222	2,222	2,222	50,986	92,708
South Bay Aqueduct	119,586	8,675	9,160	9,498	9,152	9,067	9,422	9,392	9,518	9,240	9,279	9,237	9,285	9,289	9,287	240,069	489,156
California Aqueduct																	
Delta to Edmonston	1,512,493	125,970	134,434	135,973	129,743	134,033	154,794	156,465	156,604	148,579	153,283	147,958	151,971	150,793	150,040	4,014,573	7,557,706
Edmonston to Perris	1,224,177	87,674	90,133	92,004	88,995	81,672	117,976	117,504	119,850	110,701	113,303	109,451	111,320	112,943	111,740	3,123,187	5,812,630
West Branch	(3,275)	6,515	4,213	(6,486)	585	1,746	(26,002)	(25,588)	(25,932)	(25,841)	(25,845)	(26,653)	(25,603)	(25,851)	(26,082)	(630,719)	(860,818)
Coastal Branch	60,903	8,290	7,578	7,735	7,472	7,394	8,414	8,377	8,528	8,193	8,240	8,189	8,248	8,253	8,250	215,774	389,838
Off-Aqueduct power generating facilities	649,134	35,908	48,379	49,562	50,562	51,562	51,562	51,562	51,562	51,562	51,562	51,562	51,562	51,562	51,562	135,978	1,485,143
Recreation, planning, and CVP negotiations	0	0	0	0	0	488	488	488	488	488	488	488	488	488	488	12,204	17,084
Water quality monitoring	165,670	14,460	14,840	15,184	15,076	14,011	14,004	14,036	14,387	14,737	14,737	14,737	14,737	14,737	14,737	234,976	605,066
Davis-Grunsky Act Program	4,653	302	281	253	257	257	257	257	257	257	257	257	257	257	257	6,418	14,734
Subtotal	3,877,287	298,639	317,345	312,250	309,296	307,999	338,683	340,268	343,079	325,676	333,079	322,997	330,056	330,269	328,084	7,542,721	15,957,728
Payments to\credits from PG&E under																	
Comprehensive Agreement	(38,598)	(3,186)	(3,035)	(2,883)	(2,732)	(2,581)	(2,429)	(2,278)	(2,127)	0	0	0	0	0	0	0	(59,849)
Total OMP&R Costs	3,838,689	295,453	314,310	309,367	306,564	305,418	336,254	337,990	340,952	325,676	333,079	322,997	330,056	330,269	328,084	754,720	15,897,879
Composition																	
Salaries and expenses of headquarters personnel	713,684	69,390	72,177	74,538	73,987	74,412	74,249	74,249	74,249	74,249	74,250	74,251	74,251	74,252	74,252	1,728,430	3,474,871
Salaries and expenses of field personnel	1,308,707	109,921	102,001	100,416	90,962	90,295	90,321	90,355	90,703	91,057	91,055	91,050	91,050	91,049	91,048	2,261,035	4,881,027
Pumping power																	
Used by pumping plants	1,958,411	153,363	168,239	169,620	189,235	180,594	236,174	239,725	240,905	222,983	231,867	220,532	229,163	229,071	226,398	6,296,282	11,192,562
Produced by generation plants	(734,686)	(70,193)	(73,714)	(82,162)	(95,727)	(89,140)	(113,899)	(115,899)	(114,616)	(114,451)	(115,931)	(114,674)	(116,246)	(115,941)	(115,452)	(2,885,905)	(5,068,638)
Payments to\credits from PG&E under																	
Comprehensive Agreement	(38,598)	(3,186)	(3,035)	(2,883)	(2,732)	(2,581)	(2,429)	(2,278)	(2,127)	0	0	0	0	0	0	0	(59,849)
Off-Aqueduct power generating facilities	, ,	, ,	, ,	, ,	, ,	, ,	, ,	, ,	, ,								, , ,
requirement	649,134	35,908	48,379	49,562	50,562	51,562	51,562	51,562	51,562	51,562	51,562	51,562	51,562	51,562	51,562	135,978	1,485,143
Oroville-Thermalito insurance premiums	9,740	250	263	276	276	276	276	276	276	276	276	276	276	276	276	6,900	20,465
Less: Portion of costs incurred during construction	(121,353)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(121,353)
Subtotal	3,745,039	295,453	314,310	309,367	306,564	305,418	336,254	337,990	340,952	325,676	333,079	322,997	330,056	330,269	328,084	7,542,720	15,804,229
		∠3J, <del>4</del> JJ	514,510	503,307	500,504	505,416	,	337,880	J40,932	323,070	555,078	322,331	550,050	550,209	320,004	1,042,120	
Deposits to replacement reserves	93,650	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	93,650
Total OMP&R Costs	3,838,689	295,453	314,310	309,367	306,564	305,418	336,254	337,990	340,952	325,676	333,079	322,997	330,056	330,269	328,084	7,542,720	15,897,879
Project Purpose																	
Water supply and power generation	3,689,487	278,949	298,336	293,691	291,513	290,230	320,870	322,339	325,289	307,822	315,074	305,238	312,171	312,388	310,267	7,113,034	15,086,699
Payments to\credits from PG&E under	(38,598)	(3,186)	(3,035)	(2,883)	(2,732)	(2,581)	(2,429)	(2,278)	(2,127)	0	0	0	0	0	0	0	(59,849)
Comprehensive Agreement																	
Recreation and fish and wildlife enhancement	67,543	8,030	7,821	7,706	7,762	7,749	7,790	7,906	7,766	7,832	7,983	7,737	7,863	7,859	7,795	179,079	356,221
Flood control	2,763	267	209	256	247	246	249	249	250	248	248	248	248	248	248	6,270	12,494
Miscellaneous purposes																	
Federal share, San Luis, and Delta facilities	109,614	10,899	10,525	10,159	9,340	9,340	9,340	9,340	9,340	9,340	9,340	9,340	9,340	9,340	9,340	233,505	477,442
Other (Davis-Grunsky, drainage,City of Los Angeles)	7,880	494	454	438	434	434	434	434	434	434	434	434	434	434	434	10,832	24,872
Total OMP&R Costs	3,838,689	295,453	314,310	309,367	306,564	305,418	336,254	337,990	340,952	325,676	333,079	322,997	330,056	330,269	328,084	7,542,720	15,897,879

## Table 15-11 Annual Debt Service on Bonds sold through June 30, 1997 (Thousands of dollars)

Reid Gardner Proiect South Geysers Project Power Facilities Power Facilities Bottlle Rock Project Small Hydro Project Fast Branch Pyramid Project Power Revenue Bonds, Revenue Bonds, Series Power Facilities Power Facilities Alamo Project Power Enlargement Project Water System Facilities Facilities Revenue Series B. C. G and H: D. F. and H: Water Revenue Bonds, Series Revenue Bonds, Series Facilities Revenue Water System Revenue Water System Revenue Coastal Extension Bonds, Series A and H; E; Water System D and H; Water System Bonds, Series F and H; Bonds, Series A, D, E, Water System Revenue System Revenue Bonds, Series B, C, D, Facilities Bonds, Series F, J, Series A through Y Oroville Devil Canvon-Castaic Water System Revenue Bonds, Series D. E. J. L. Revenue Bonds, Series Revenue Bonds, Series Water System Revenue H, I, J, K, L, M, N, O, P, E. G. H. I. J. K. L. M. N. Water System Revenue Calendai Water Bonds Revenue Bonds (a Project Revenue Bonds Bonds, Series J and Q and Q Q. and R D, E, J, Q, and R Bonds, Series J and Q Q. and R O, P, Q, and R Bonds, Series Q Grand Total J and L Interest Interest Interest Principal Interest Interest Principal Interest Principal Interest Interest Principal Interest Principal Interest Principal Interest Principal Principal Principal Principal Principal Principal Interest Principal Interest 'ear 3.333 1965 11.114 11,114 966 16 742 0 0 0 0 0 16 742 1967 26.912 0 0 0 0 0 0 26.912 37.760 41.636 969 47.461 10.448 0 57,909 Ω 0 0 0 1970 53.291 13 145 0 0 66.436 O 0 63.035 76.180 972 69,148 1,260 13,112 1,260 82,260 0 0 1 200 2 530 1973 69 348 1 330 13 042 7 708 0 0 0 90 098 1974 3.000 69.533 1.400 12.969 0 7.708 4.400 90.210 5.000 69.366 1.475 12.893 7.708 6.475 89.967 7,000 69,408 12,811 7,708 8,555 89,927 1976 1 555 1977 10 200 69 323 1 635 12 727 0 7 708 0 0 11 835 89 758 1978 12.700 69,312 5.775 12.537 7.708 0 18.475 89.557 0 0 0 0 1979 13.650 68.690 11.585 12.275 7,708 0 25,235 88.673 980 16,050 67.968 3.265 11.739 7,708 7,900 19.315 95,315 0 0 Ω 0 0 0 1981 18 050 67 109 4 885 11 444 0 7 708 0 7.292 5 312 22 935 98 865 0 0 0 0 1982 19,250 66.162 17.920 10.968 7,708 7,292 14,347 37,170 106,477 0 983 20,520 65,148 21,110 10,147 900 7,708 7,292 35,719 Ω 4 777 0 6.017 0 3,727 0 2,449 0 42,530 142,984 10.315 3.727 4.198 147.626 1984 21.785 64.068 10.005 9.013 955 7.647 640 7.292 35.719 5.647 33.385 0 0 0 1985 22.555 63.932 12.700 8.628 1.010 7,583 675 7,238 9.425 27.209 Ω 5.647 0 10.315 0 3.727 0 4.198 0 46.365 138,477 Ω Ω 986 23,830 61.742 11.435 7,859 1.070 7,515 715 7,377 3.805 32.882 5.516 1,240 10,315 3,537 0 4,263 4.021 0 42.095 145,027 4,952 11.715 7.188 1.135 7.513 5.386 1.305 10.253 3.348 265 4.329 9.651 153.159 1987 25.495 60.492 7.442 790 4.860 32.605 45.565 1988 26.770 59 165 6 685 6 664 1 205 7.366 830 7 447 5 065 32 295 5 521 1.390 10 849 345 3.348 280 4.314 995 9 875 710 11 037 44 855 157 881 1989 28,145 57,825 33,705 5,513 1,275 7,284 875 7,378 7,820 27,557 709 5,646 1,565 11,592 365 3,328 295 4,298 1,078 10,100 1,148 14,373 76,980 154,894 1990 29,385 10,385 4,301 1,355 7,198 7,305 6,675 29,781 761 5,596 1,678 11,491 405 3,304 320 4,279 1,134 10,048 1,227 19,555 54,255 159,331 56.473 930 5,535 27,569 30.365 12.055 1.435 7.107 7.227 818 430 3.276 335 4.257 16.856 2.129 171.497 1991 55.070 3.922 980 7.170 29.302 1.791 11.376 1.197 58.705 0 1992 31.745 54.233 14.135 2.985 1.520 7,010 2.395 5.307 8 950 27 188 1.934 4.136 4.575 7.942 960 2.553 1,260 3.086 2.583 22.241 5.108 28 412 75.165 165.093 33,390 13,755 2,237 1,610 6,907 1,525 5,687 8,820 4,256 445 2,640 755 3,300 4,577 29,966 164,466 1993 52,707 26,953 901 3,264 8,385 3,039 21,428 72,081 35,075 35,225 934 1,705 6,799 1,575 5,633 78,457 26,273 1,588 4,072 3,374 8,270 695 2,569 780 3,274 4,567 20,752 5,915 38,225 168,956 168,075 1994 51.274 0 1.810 1.630 5.569 5.420 1.695 4.005 3.521 745 2.536 3.242 4.979 8.069 37.880 157,479 1995 36.210 49.701 0 6.684 19.230 8.133 805 20.499 0 64.884 1996 37.520 48,072 1.920 6.561 2.315 5.485 49.465 18,130 3,043 3.909 3,682 7.974 3,135 2.464 1,055 3,203 4,771 23.240 10.464 58.170 117,370 177.208 0 37,215 5,044 7,515 1,825 3,764 3,861 585 2,283 875 2,969 6,300 23,539 14,370 67,304 1,981 182,820 1997 46.412 0 2.035 6.432 1.700 15.230 7.862 0 76.281 44.785 1.770 4.963 3.676 4.030 2.258 2.927 6.625 65.796 1.829 177.942 1998 37.295 2.155 6.295 8.035 14.710 1.935 7.634 625 910 23.069 16.504 0 79.884 1999 38 220 43 180 0 2 285 6 160 1 845 4 874 8 595 14 156 2 081 3 585 4 240 7 433 680 2 229 960 2 881 6 942 22 706 17 333 64 686 0 1 829 83 181 173 719 2000 39,510 41,524 2,420 6,040 1,925 4,778 9,185 13,557 1,950 3,485 4,470 7,212 610 2,197 1,010 2,831 8,054 22,311 17,721 63,502 1,829 86,855 169,266 0 0 4,674 39.806 2.565 5.912 2.020 9.830 12.911 2.045 3.379 4.720 6.971 640 2.164 1.065 2.777 8.465 21.887 18.659 62.317 1.829 90.609 164.627 2001 40.600 0 2002 41 740 38 041 0 2 720 5 773 2 115 4 563 10 530 12 215 2 160 3 267 4 990 6 711 680 2 129 1 125 2 718 8 911 21 223 19 654 60 886 Ω 1 829 94 625 159 355 2003 43,590 36,219 2.885 5,626 2,215 4.445 1,740 11,463 2,290 3,146 5,285 6.432 705 2,091 1,190 2,655 9,370 20,735 20,700 59.562 1,829 89.970 154,203 0 0 45.730 34.305 3.055 5.470 2.330 4.319 1.855 11.347 2.425 3.015 5.610 6.131 795 2.051 1.260 2.587 8.743 20.213 22.652 58.163 1.829 94.455 149,430 144,536 2005 47.020 32.306 0 3.240 5.305 2.540 4.183 8.485 11.223 2.750 2.875 5.950 5.805 1.135 2.005 1.375 2.514 9.211 19.733 23.814 56.758 0 1.829 105.520 2006 48.275 30 248 3 435 5 130 2 675 4 033 9 015 10 705 2 920 2 712 6 325 5 454 1 180 1.938 1 450 2 433 9 721 19 226 25 094 55 266 1 829 110 090 138 974 3,640 3,873 9,530 2,537 5,075 1,250 1,867 1,540 2,346 765 115,925 133,143 2007 49.765 28.126 4.945 2.825 10.147 3.100 6.730 10.901 18.690 25.879 53.708 1.829 2,254 2008 51.755 25.938 3.860 4.749 1.696 3.703 25,069 9.558 3.38 2.351 7.636 4.671 1,265 1,792 934 10.728 18.103 27.156 52.267 810 1.783 134.290 127,169 54 095 23 656 4 090 1 800 3 600 26 757 7 813 3 574 2 145 8 121 4 208 1 280 1 714 2 197 11 361 17 520 28 712 50 816 1 734 141 646 119 943 2009 4 540 996 860 2010 55.785 21.280 4 335 4.319 1.906 3 489 28 547 5.976 3 807 1.927 8.637 3.715 1,270 1.636 1.069 2.136 12.031 16 900 30 378 49 249 910 1.683 148 675 112.310 57,275 4,595 4,085 3,505 3,373 30,495 4,016 3,960 1,695 8,675 3,192 1,270 1,558 1,980 2,070 12,887 16,231 33,018 47,580 965 1,628 158,625 104,256 2011 18.828 0 2012 58.615 16,277 4.875 3,837 3.720 3,127 32.615 2,084 4,235 1,417 9,335 2,584 1,285 1.469 2,135 1,931 13,651 15.519 34.944 45,735 1,015 1,578 166,425 95,558 86 470 60 455 5 165 3 574 2 867 305 1 121 10 347 1 931 1 850 1 379 1 560 14 765 36 121 43 776 1 065 1 526 138 455 2013 13 733 0 2 684 16 4 603 1 782 14 300 2014 57.985 11.296 5.475 3.303 4.160 2 703 4.830 846 10.720 1.332 1.920 1.266 2 450 1.687 15.201 13.955 39.159 41.792 1.120 1.472 143.020 79,652 2015 53.775 8.886 5.805 3.015 4.375 2.453 5.075 556 1.990 1.151 2.605 1.540 16.114 13.093 41.416 39.625 1.180 1,413 133.075 72.421 2016 6 669 6 150 2 710 2 190 2 180 251 790 644 2 165 1 032 2 775 17 074 12 186 43 801 37 348 1 240 1 351 126 990 65 764 46 215 0 4 600 1 383 2017 38 145 4 651 0 6 520 2 388 4 835 1.914 170 120 840 597 2.275 902 2 955 1.217 18 104 11 227 46 336 34.961 1 305 1.286 121 485 59.263 25.435 3.009 6.910 2.045 5.080 1.624 110 890 547 2.395 765 3.155 1.039 19.200 10.208 48.925 32.454 1.375 1.217 113.545 53.018 2019 16,975 1,804 7,325 1,682 5.335 1,320 190 99 950 493 2,505 621 3,360 850 20,436 9.124 51.629 29,798 1,450 1.144 110.155 46.935 3 585 2020 17 405 956 7 765 1.298 5 610 999 205 88 1 010 435 2 630 471 649 21 677 7 970 54 608 26 958 1 525 1 066 116 020 40 890 2021 8.595 320 8.230 890 5.890 663 215 76 1.070 374 2.750 313 3.825 433 22.968 6.781 57.752 23.979 1.610 984 112.905 34.813 2022 1.885 61 8,725 458 6,160 339 230 64 1.130 316 2.945 162 4.055 223 24.349 5.527 61.031 20.909 1.695 897 112.205 28.956 2023 85 424 51 2.110 253 20.081 4.209 68,586 17,704 1,785 93,071 23,031 806 2024 35 440 26 2,184 129 0 21.259 3.130 65 443 14 034 1.880 710 91 241 18 033 2025 35 0 0 17,251 1.933 50.688 10.505 1.985 609 69.959 13,048 2026 6,997 44.657 7.888 2,090 502 53.744 9,365 622 42,323 5,645 2,200 390 49,330 6,657 2027 4.807 0 0 0 0 O 0 2028 0 0 Ω 0 0 3.821 389 33.009 3.536 2.320 272 39.150 4.197 2029 4,041 201 34,884 1,857 2,450 140 41,375 2,198 Total 1.582.400 2.387.246 244.995 246.522 139.165 283.872 105.076 203.486 424,035 587.629 75,209 118.033 158.781 232.057 46,205 83,527 62,319 108,548 445,924 602,611 1,236,303 1.576.503 33,600 44.462 4.554.012 6.474.496 a) Principal and interest schedule adjusted to reflect early redemption of bonds.

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facilities. Assumptions about the service on these future bonds are the same as those indicated above for Lines 27 and 28.

Lines 31 and 32, Total Payments of Bond Debt Service, show the total of principal payments indicated on Lines 25, 27, and 29 and the total of interest repayments indicated on Lines 26, 28, and 30.

*Line 33, Subtotal, Debt Service,* is the total of Lines 31 and 32.

*Line 34, Total Operating Expenses and Debt Service*, is the total of Lines 21, 22, 23, 24, and 33.

Line 35, Net System Revenues, shows the annual amounts of revenues remaining after the payment of operating costs and bond debt service costs.

Line 36, California Water Fund Repayment, shows repayments according to the Burns-Porter Act, which requires that after operation, maintenance, replacement, and bond service requirements have been satisfied, SWP revenues be transferred to the California Water Fund to reimburse the fund for moneys expended for construction of the State Water Resources Development System.

In 1982 and 1983, the Department transferred a total of \$70 million toward the repayment of the California Water Fund. The legislature subsequently appropriated all these funds to the State's General Fund. Legislation enacted in 1989 provided for the orderly, scheduled reimbursement of the remaining balance owed to the California Water Fund over a period of 10 years. A portion of this reimbursement is to be offset by the amounts owed to SWP by the State for costs allocated to recreation and fish and wildlife enhancement.

As of December 31, 1996, reimbursements to the California Water Fund totaled \$488 million. Of this

total approximately \$258 million was direct repayments and \$230 million was offsets for recreation and fish and wildlife enhancement expenditures to date.

It is projected that repayment of the California Water Fund will be completed in 1998.

Line 37, Revenues Used for Capital Expenditures, includes the amounts required annually for financing scheduled capital expenditures. Also included in this line are projected expenditures to support the Bay-Delta Advisory Council and other programs required to comply with the Bay-Delta Agreement signed in December 1994. Revenues not needed for operating costs, debt service, or repayment of the California Water Fund are available for financing SWP capital expenditures.

#### **Future Costs of Water Service**

Estimates of future water costs are useful to SWP contractors in short-range and long-range planning of water needs, operations, and budgets.

Unit water charges shown in Table 15-12 represent both unescalated and escalated costs of water according to service areas for years 1998 and 2001. The unit rates in Table 15-12 include costs of existing and future SWP facilities accounted for in Tables 15-1 and Table 15-7. The unit charges are based on the assumption that in 1998 and 2001, the SWP will be able to deliver entire amounts of water requested by contractors. The unit water charges included in Table 15-12 are listed both as unescalated 1996 dollars and as escalated rates reflecting assumed future inflation.

The Department's estimates of future capital expenditures include allowances for escalation of construction costs at 3 percent per year for 1997 through 2010. The escalation rates for future power sources vary, depending on the source of energy.

Information for this chapter was provided by the State Water Project Analysis Office in conjunction with the Division of Fiscal Services.

Table 15-12
Estimated Unit Water Charges for 1998 and 2001, by Service Area (Dollars per Acre-Foot)

	199	98	2001			
Service Area and Charge	Unescalated	Escalated	Unescalated	Escalated		
Feather River Area						
Capital; Operations,						
Maintenance, and Replacement						
(OM&R)	12	12	31	31		
North Bay Area						
Capital; OM&R	172	172	165	165		
Power	13	13	12	12		
Total	185	185	177	177		
South Bay Area						
Capital; OM&R	92	92	83	83		
Power	32	32	30	31		
Total	124	124	113	114		
Coastal Area						
Capital; OM&R	746	746	650	650		
Power	77	77	75	77		
Total	823	823	725	727		
San Joaquin Area						
Capital; OM&R	50	50	49	49		
Power	15	15	14	14		
Total	65	65	63	63		
Southern California Area						
Capital; OM&R	189	189	153	153		
Power	83	83	75	77		
Total	272	272	228	230		

# **SWP Education and Information**



Carolyn Tucker of the Office of Water Education with the water burger, a soft sculpture that illustrates how much water it takes to make a burger

#### **Significant Events**

- Throughout the emergency phase of the January 1997 floods, Office of Water Education staff provided around-the-clock news media outreach. Graphics staff provided film, photo, and video coverage to facilitate Department communication with the public and the news media.
- OWE's Graphic Services Branch provided design and photography services for the Governor's Flood Emergency Action Team's preliminary and final reports.
- The Department produced a new State Water Project video to educate the public and news media about the importance of the SWP.
- On Labor Day 1996, the Department sponsored a "coffee break for safety" at Vista Del Lago Visitors Center, treating thousands of holiday motorists to free refreshments.

- A new book, Environmental Education Compendium for Water Resources, was published, which covers current water curricula that have been reviewed and rated by teams of teachers.
- Two new videos were produced for use in grades K-3 and 4-6. These lively, entertaining videos educate school children about the water cycle and how water is cleaned and purified.
- The Department marked the 10th anniversary of Water Awareness Month with special events at SWP facilities.
- The Department's central Internet site, the California Water Page, attracted an increasing population of users. Peak usage occurred during the January 1997 floods.

he Department of Water Resources' Office of Water Education conducts public information and education programs to inform the news media and educate the public about the value and operations of the State Water Project. These programs use an array of public outreach methods, including news media relations, publications, videos, Internet web sites, SWP visitor centers and tours, brochures, exhibits, and special events.

### State Water Project Information and Education Programs

#### **Media Outreach**

During fiscal year 1996-1997, the Department issued 33 news releases; provided numerous media advisories, interviews and faxes; cooperatively developed news releases with other water agencies; and assisted the CALFED Bay-Delta Program with its public outreach effort. During January's historic storms and flooding, the Office of Water Education conducted daily news briefings on flood management activities and helped staff the State-federal Flood Operations Center 24 hours a day for more than a month.

The Graphic Services Branch organized and filmed extensive ground and aerial videos and provided photographic documentation of the flooding. This helped flood management officials meet planning and floodfight needs and provided visual documentation for legal and archival purposes. The Department's film staff flew about 20 helicopter missions from January 2 to 17, documenting peak river flows, flooding, and levee breaks. In addition, the branch provided extensive design and photo services for both the preliminary and final reports of the Governor's Flood Emergency Action Team.

For weeks, California's January 1997 flood ranked high in national and State news, attracting network news reports and live regional TV coverage. The Department handled hundreds of inquiries from the State and national news media, including wire services, network television, regional and local news media, and water industry and specialty publications.

Flood news dominated the winter season, culminating in a 10-page article in the August 1997 issue of *Smithsonian* magazine.

On more routine news developments, the Department issued news releases on water supply and deliveries via the SWP, changing water conditions and snow-pack, as well as a new publication describing the urban benefits of using the Department's California Irrigation Management Information System—a system originally created for farm use.

To help Department officials deal effectively with the news media, OWE continued its ongoing one-day training sessions on "Working With the News Media." Taught by a professional trainer and former TV news director, the workshop has been valuable in helping the Department furnish the news media with prompt, accurate information in both emergency and routine news situations.

#### **Internet Web Site**

The Department's Internet web site, online since January 1995, completed its second full year of operation. Usage tripled during fiscal year 1996-1997. Revisions to the Department's main web site will enhance usability and increase the amount and variety of information available. The Department currently has 20 major home pages online for public access; OWE reviews all home pages before they go online. Five sites became active in 1996-1997:

- California Irrigation Management Information System home page;
- Northern District's home page;
- Central District's home page;

- Municipal Water Quality Investigations home page; and
- State Water Project Analysis Office home page.

#### **Publications**

**DWR People.** The Department's employee newsletter became a quarterly publication during fiscal year 1996-1997. Stories feature employees, their accomplishments, skills, news, awards, and retirements. This year's issues reported on a variety of timely topics, including a 40th anniversary issue recapping the Department's achievements in its first four decades and a special winter issue on California's flood fights.

**DWR Update.** An employees-only online newsletter, *DWR Update* provides timely news of interest on departmental changes and events, employee assignments and accomplishments, training, statewide water issues, and other announcements. Information is added and revised weekly or as news develops.

**DWR News.** This news magazine is published twice yearly, in the spring and fall. It features in-depth reporting of the Department's programs and projects, as well as significant statewide water issues. Many subjects were featured during 1996-1997, including:

- the Department's 40 years of service to California:
- historic flooding of January 1997;
- an interview with Lester Snow, CALFED's executive director;
- water transfers:
- recreational development at Oroville-Thermalito Complex;
- construction of a new intake tower at Silverwood Lake; and
- Sacramento area flood control projects.

**Coastal Newsletter.** During 1996-1997, the Department published the *Coastal Progress*, a periodic newsletter to keep interested persons and agencies updated on construction progress along the Coastal Branch.

**Silverwood Newsletter.** The Department published a second newsletter to keep Silverwood Lake visitors informed of the completion of the new intake struc-

ture and to publicize the lake's reopening to recreation in midsummer 1997.

**Brochures.** The Department routinely publishes an array of brochures describing SWP facilities. During fiscal year 1996-1997, OWE revised and reprinted four brochures: *Warne Powerplant, Banks Pumping Plant, North Bay Aqueduct*, and *Silverwood Lake*.

In addition, the Department prepared a comprehensive new brochure describing the Coastal Branch Aqueduct—its history, construction, and importance as a supplemental water supply to the drought-vulnerable Central Coast—timed to coincide with completion of construction of the Coastal Branch.

Maps. The State Water Project Location and Profile Map was revised and reprinted in Chinese and English. The map's major updates included adding the Coastal Branch Aqueduct and the Mojave Siphon Powerplant. The map is also available in Spanish, Japanese, and German.

OWE completed a map showing recreation sites and opportunities at the Oroville-Thermalito Complex. The maps are available at display units at the Oroville Field Division's administration building and at the dam.

**SWP Calendar.** The 1997 calendar featured the three visitor centers at Oroville, Romero Overlook, and Vista del Lago, and the visitor areas at Edmonston Pumping Plant and the Delta Field Division administration building.

#### **Video Projects**

OWE completed an important new SWP video, "Meeting the Challenge," a 14-minute, full-color video presenting a concise overview of the State Water Project, its history, location, and operation. Available in English and Spanish, the video was distributed to the State water contractors, California cable stations, and within the Department.

"Pipeline," a 6-minute video, was produced to describe the Coastal Branch Aqueduct, its construction, and the water supply needs it will meet. In November 1996, Department videos began airing regularly on The California Channel, an independent cable television network serving 100 cable television systems with about 4 million outlets.

The Department completed and distributed two public service announcements to California TV stations to encourage recreation at Lake Oroville and Pyramid Lake.

The Graphic Services Branch contributed highlight footage to a February documentary on PBS featuring the new year's floods.

The Department provided video footage for the PBS series "Cadillac Desert," which aired in June 1997.

#### **Photographic Technology**

The Graphic Services Branch upgraded its photographic technology and remodeled its dark room space to consolidate equipment in a new digital imaging area.

#### **Visitor Center Program**

During fiscal year 1996-1997, visitors participated in a self-administered survey, which was conducted monthly at Vista del Lago and Romero visitor centers. The new survey is a condensed version of an original developed in the previous fiscal year for Vista del Lago. Key findings from the 699 interviews included:

- over 95 percent of the visitors viewed at least one exhibit;
- over 92 percent said they learned something new about water;
- more than 77 percent of the visitors learned about the center from highway signs;
- the largest age groups visiting (45 percent) were between 26 and 45 years of age; and
- most visitors (77 percent) had some college education.

These surveys revealed how people learned about the centers, what they did while visiting them, and how satisfied they were with the facilities, exhibits, and services. They also provided demographic information about the visitors, such as their residence, level of education, and ethnicity.

On Labor Day 1996, one of the largest public events of the year took place at Vista del Lago Visitor Center. A "coffee break for safety" was held for holiday motorists from nearby Interstate 5. Thousands of motorists stopped by free coffee and looked at the center's exhibits.

Table 16-1 shows the number of visitor-days in the different field divisions.

Table 16-1
Visitor-Days Recorded in 1996, by Location

Location	Visitor-Days
Oroville Field	152,301
Delta Field Division	1,492
San Luis Field Division	155,860
San Joaquin Field Division	5,466
Southern Field Division	131,264
Total	446,383

#### **Water Safety Education**

An animated public service announcement was completed and distributed to television stations for use during the summer months entitled "Stay Alive! Read The Signs!" The 30-second announcement featured the Department's water safety mascots, Albert and Einstein, traveling along the California Aqueduct and admonishing viewers to read warning signs and practice water safety. Additionally, two water safety displays were completed and used throughout the State. One message for lake-users reads: "When you're near the water...wear a life jacket!" The other, for use along the Aqueduct, reads: "Be careful. These aqueduct sides are slippery."

#### **SWP Visits and Tours**

This year, the Department welcomed 69 delegations with 929 individuals from 19 nations.

SWP visitors came from a number of countries, including: Australia, Malaysia, Bangladesh, Pakistan, Canada, People's Republic of China, Egypt, Punjab, France, Saudi Arabia, Germany, South Korea, Hungary, and Taiwan.

#### **Displays and Exhibits**

Expanding its exhibit outreach, OWE participated as an exhibitor at two Association of California Water Agencies conferences to promote new publications, videos, and SWP awareness. OWE staffed exhibits at major recreation expositions in Northern and Southern California to educate the public about the SWP and its facilities.

Exhibits at Romero Visitor Center were updated. New displays show a timeline of California water development and San Luis Reservoir construction, a fiber optic map showing SWP and CVP facilities and service areas, and a photo mural describing the Department's environmental efforts.

At Kelly Ridge Visitor Center, exhibits were revised and a new fiber optic interactive exhibit was added that depicts "pump back" capability at Oroville. Additionally, the Delta exhibit at Vista del Lago was updated.

During fiscal year 1996-1997, three exhibits were created for the glass case display in the Resources Building lobby. They included a tribute to those who worked on the floods, an informative display on Lake Silverwood fish spheres, and an Albert and Einstein display on water safety in the California Aqueduct.

#### **School Education Program**

In 1991-1992, the SWP began support of the Department's School Education Program. The program's goal is to provide students and educators with a statewide perspective of water issues, such as conservation, conveyance systems, and the water cycle. The program develops and promotes high quality materials that the Department provides at no charge to schools, educators, and water districts.

Product highlights for 1996-1997 include:

- The new Environmental Education Compendium for Water Resources.
- The first two (for grades K-3 and 4-6) of four videos for children. Both show the four phases of the water cycle.

The Feather River Fish Hatchery Teacher's Guide. The guide contains lessons for teachers of grades 4-6 to use with their students before and after visits to the hatchery. Lessons cover salmon and steelhead life cycles, migration patterns, and the role hatcheries play in sustaining fish populations.

The Department's Children's Exhibit was shown at the Children's Water Festival in Anaheim and again at the Conservation Fair at the Capitol. Several components, including the "Water Burger" and "Fishin' for Facts," were reproduced for use in the Department's field divisions and district offices.

OWE staff participated in three Water Education Committee meetings in October, February, and June. OWE also cosponsored workshops on "A Child's Place in the Environment" and "Caring for Aquatic Systems."

OWE contributed to the following events:

- Environmentality Campaign for 5th grade students (also sponsored by the State of California and the Walt Disney Corporation);
- California 2000 project, an educational module being developed by Cal Poly to educate California school children, teachers, and parents about California water history, including the SWP; and
- Aquatic Outreach Institute's Educator Conference on Creeks, Wetlands, and Watersheds.

#### **Water Awareness Month Activities**

Calendar year 1997 marked the tenth annual observance of Water Awareness Month in California. The Department celebrated with activities and special events conducted with field division staff. They included:

- April 30 to May 4, Merced County Spring Fair in Los Banos;
- May 8, "Hooked On Fishing" event at Edmonston Pumping Plant;
- May 17, Fishing Derby at O'Neill Forebay, sponsored by the Department, California Department of Parks and Recreation, and the Four Rivers Natural History Association;

- May 31 to June 1, Apricot Festival at Patterson; and
- June 7, Bethany Reservoir Fishing Clinic and Free Fishing Day.

#### **Summary**

The Office of Water Education aids the Department in publicizing significant events to keep the news media apprised of SWP operations, water deliveries, and other developments.

Improved media relations and effective public outreach are high priorities for the Department's information and education programs. During fiscal year 1996-1997, OWE enhanced its Public Information Officer capability during flood season by training and using auxiliary PIOs.

Press relations, publications, videos, exhibits, and school and community outreach projects help inform California's residents and visitors of the SWPAO importance in water delivery, management, planning, and safety. These efforts help the Department fulfill its mission to educate the public about water's vital role in their lives and the continuing need to protect, manage, and conserve the State's water resources.

Information in this chapter was contributed by the Office of Water Education.

# Appendix B

Data and Computations Used to Determine 1998 Water Charges

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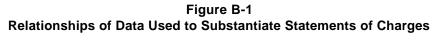
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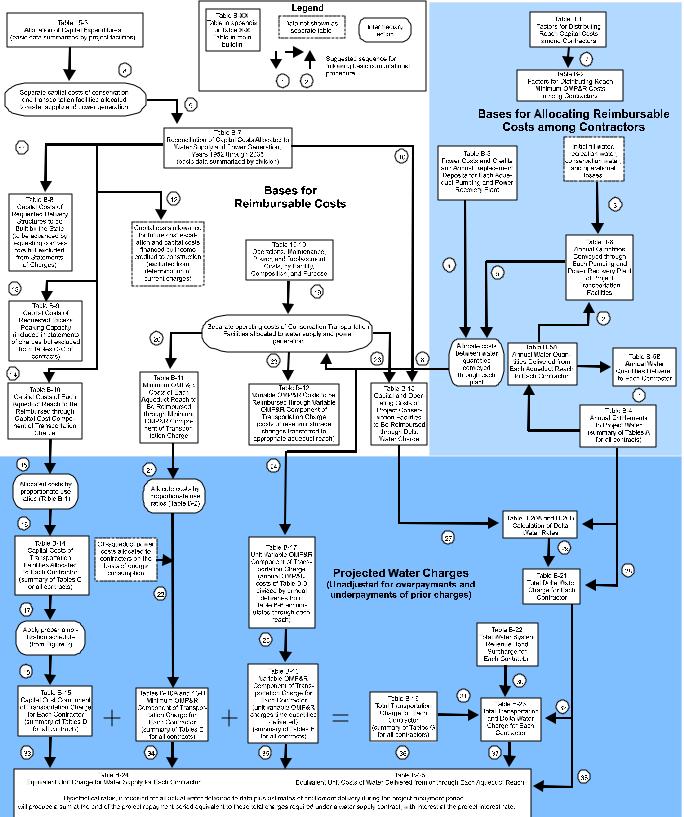
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## Appendix B

## **Data and Computations**

#### Used to

## **Determine 1998 Water Charges**

The Department of Water Resources annually furnishes Statements of Charges to the 29 long-term State Water Project water supply contractors. Article 29(e) of the Standard Provisions for Water Supply Contracts, approved August 3, 1962, describes those statements:

All such statements shall be accompanied by the latest revised copies of the document amendatory to Article 22 and of Tables B, C, D, E, F, and G of this contract, together with such other data and computations used by the State in determining the amounts of the above charges as the State deems appropriate

To comply with Article 29(e), the Department performs an annual comprehensive review and redetermination of all water supply and financial aspects of the SWP for the entire project repayment period. This annual redetermination is performed in accordance with Article 22(f) and Article 28 of the water contracts, which concern the Delta Water Rate and annual transportation charges, respectively.

Appendix B includes data used to document the redetermination of water charges to be paid by contractors during calendar year 1998. The information is based on established data about the SWP, both known and projected, as of June 30, 1997.

The computational procedures and interrelationships between tabulations in this appendix are outlined in Figure B-1 and Figure B-2. All tables referenced in Figures B-1 and B-2 follow this text.

# **Types of Water Charges**

Charges to SWP water supply contractors include the costs of facilities for the conservation and development of a water supply and the conveyance of such supply to SWP service areas. These facilities are

classified as "Project Conservation Facilities" and "Project Transportation Facilities" in the Standard Provisions for Water Supply Contract. The names of the main facilities in each classification follow.

#### **Project Conservation Facilities**

- · Antelope Dam and Lake
- Oroville Dam and Lake Oroville
- · Oroville power facilities
- Delta facilities
- A portion of the California Aqueduct from the Delta to Dos Amigos Pumping Plant
- Sisk Dam, San Luis Reservoir, and Gianelli Pumping-Generating Plant

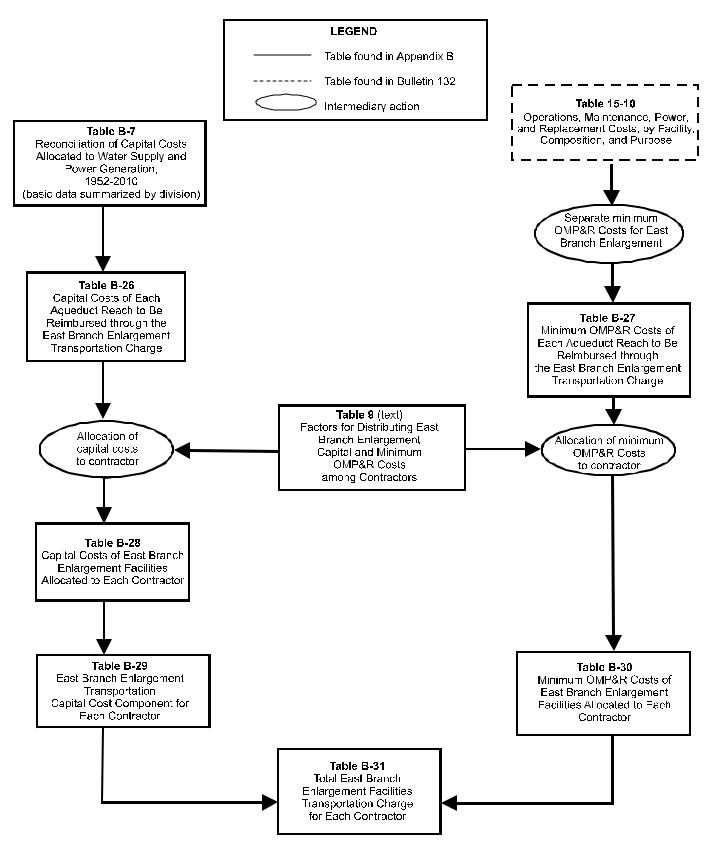
#### **Project Transportation Facilities**

- Grizzly Valley Pipeline
- · North Bay Aqueduct
- South Bay Aqueduct, including Del Valle Dam and Lake Del Valle
- Remainder of the California Aqueduct from the Delta to Dos Amigos Pumping Plant and all facilities south, including dams and lakes in Southern California
- Off-Aqueduct Power Facilities (Reid Gardner Unit No. 4, Bottle Rock Powerplant, and South Geysers Powerplant)

The standard provisions provide for a Delta Water Charge and a Transportation Charge for Project water.

The Delta Water Charge is a unit charge applied to each acre-foot of SWP water the contractors are entitled to receive according to their contracts. The unit charge, if applied to each acre-foot of all such entitlements for the remainder of the Project repayment period, is calculated to result in repayment of all outstanding reimbursable costs of the Project Conserva-

Figure B-2
Relationships of Data Used to Substantiate East Branch Enlargement Charges



tion Facilities, with appropriate interest, by the end of the repayment period (2035).

The Transportation Charge is for use of facilities to transport water to the vicinity of each contractor's turnout. Generally, the annual charge represents each contractor's proportionate share of the reimbursable capital costs and operating costs of the Project Transportation Facilities.

Each contractor's allocated share of those reimbursable capital costs is amortized for repayment to the State; and certain variations are allowed in the amortization methods. Essentially, the contractors' shares of reimbursable operating costs are repaid in the year such costs are incurred by the State.

The East Branch Enlargement Transportation Charge is paid by the seven Southern California contractors participating in the enlargement. San Bernardino Valley Municipal Water District advanced funds to pay the district's allocated capital costs for the East Branch Enlargement. The remaining six contractors pay an allocated share of the debt service on revenue bonds sold to finance the enlargement. Each contractor also will pay an allocated share of the minimum operation, maintenance, power, and replacement (OMP&R) costs of the East Branch Enlargement.

# Composition and Timing of Water Charges

As shown in Figure B-3, the Delta Water Charge and the Transportation Charge consist of the following three components:

- Conservation and Transportation capital cost components, which will return to the State all reimbursable capital costs;
- Conservation and Transportation minimum OMP&R components, which will return to the State all reimbursable operating costs that do not depend on or vary with quantities of water actually delivered to the contractors; and
- A Transportation variable OMP&R component, which will return to the State all reimbursable operating costs that depend on, and vary with, quantities of water actually delivered to the contractors.

The formula for computing the Delta Water Rate, Article 22(f) of the Standard Provisions for Water Supply Contract, was designed to ensure that all adjustments for prior overpayments or underpayments of the Delta Water Charge are accounted for in a redetermination of the rate. Since the redetermined rate applies to all future entitlements, such adjustments are amortized during the remainder of the Project repayment period. This appendix includes a redetermination of the Delta Water Rate for 1998.

Article 28 of the standard provisions stipulates that Transportation Charges be redetermined each year. The tables in Appendix B include the numerical data used in this redetermination. Transportation Charges for prior years through 1997 included in those tables are the redetermined amounts and do not equal the amounts actually paid by contractors.

As provided under the Water System Revenue Bond Amendment to the water supply contracts, differences between actual payments under the Transportation capital cost component and amounts computed in this redetermination are accumulated with interest and amortized during the remaining years of the contract repayment period. All computations for adjustments are included in the attachments accompanying each contractor's Statement of Charges and are reflected in revised copies of Table C through Table G of the contract, which are also furnished to each long-term water supply contractor in the annual Statements of Charges.

These redeterminations exclude four charges associated with water service other than the Delta Water Charge and the Transportation Charge. The excluded charges (and the manner in which such excluded charges are treated in this appendix) are:

- Advances of funds pursuant to Article 24(d) of the standard provisions for excess capacity constructed by the State at the request of contractors;
- 2. Advances of funds pursuant to Article 10(d) of the standard provisions for delivery structures (turnouts) constructed by the State at the request of contractors. Partial information concerning actual and projected capital costs of such delivery structures is included in this appendix. Statements concerning these costs and data are furnished to the appropriate contractors at vari-

# Figure B-3 Composition of Delta Water Charge and Transportation Charge

#### **Delta Water Charge**

Capital Cost Component

- 1. Planning, design, right-of-way, and construction costs of Conservation Facilities
- 2. Operations and maintenance costs for newly constructed Conservation Facilities prior to initial operations
- 3. Activation costs for newly constructed Conservation Facilities
- 4. Power costs allocated to initial filling of San Luis Reservoir
- 5. Capitalized O&M costs (major repair work and so forth) for Conservation Facilities
- Program costs (portion) to mitigate impacts on current Delta fishery population due to SWP pumping prior to 1986 (Department of Water Resources-Department of Fish and Game agreement)

#### Minimum OMP&R Component

- 1. Direct O&M costs of Conservation Facilities
  - a. Headquarters and field divisions (portion)
  - b. Insurance and FERC costs (portion)
- 2. General O&M costs allocated to Conservation Facilities
  - a. Contractor Accounting Office (portion)
  - b. Financial and contract administration (portion)
  - c. Water rights
  - d. Power planning for SWP facilities (portion)
- 3. Replacement deposits for SWP control centers (portion)
- 4. Credits for a portion of Hyatt-Thermalito power generation
- 5. Power costs and credits related to pumping water to San Luis Reservoir for project operations (storage changes)
- 6. Value of power used and generated by Gianelli Pumping-Generating Plant
- Program costs (portion) to offset annual fish losses resulting from pumping at Banks Pumping Plant (Department of Water Resources-Department of Fish and Game agreement)

#### **Transportation Charge**

Capital Cost Component

- 1. Planning, design, right-of-way, and construction costs of Transportation Facilities
- 2. O&M costs for newly constructed Transportation Facilities prior to initial operations
- 3. Activation costs for newly constructed Transportation Facilities
- 4. Power costs allocated to initial filling of Southern California reservoirs
- 5. Capitalized O&M costs (major repair work and so forth) for Transportation Facilities
- Program costs (portion) to mitigate impacts on current Delta fishery population due to SWP pumping prior to 1986 (Department of Water Resources-Department of Fish and Game agreement)

#### Minimum OMP&R Component

- 1. Direct O&M costs of Transportation Facilities
  - a. Headquarters and field divisions (portion)
  - b. Insurance and FERC costs (portion)
- 2. General O&M costs related to Transportation Facilities
  - a. Contractor Accounting Office (portion)
  - b. Financial and contract administration (portion)
  - c. Power planning for SWP facilities (portion)
- 3. Power costs and credits related to pumping water to Southern California reservoirs for project operations (storage changes)
- 4. Power costs for pumping water to replenish losses from Transportation Facilities
- 5. Other power costs
  - a. Station service at Transportation Facility power and pumping plants
  - b. Transmission service costs related to "backbone" Transportation Facilities
- 6. Replacement deposits for SWP control centers (portion)
- 7. Off-Aqueduct Power Facility costs—bond service, bond cover costs (25 percent of bond service), bond reserves, transmission costs to provide service to "backbone," fuel costs taxes, and O&M-less power sales allocated to Off-Aqueduct Power Facilities
- 8. Program costs (portion) to offset annual fish losses resulting from pumping at Banks Pumping Plant (Department of Water Resources-Department of Fish and Game agreement)

#### Variable OMP&R Component

- 1. Power purchase costs
  - a. Capacity
  - b. Energy
  - c. Pine Flat bond service, O&M, and transmission costs allocated to aqueduct pumping plants
- 2. Alamo, Devil Canyon, Warne, and Castaic power generation credited at the power plant reach and charged to aqueduct pumping plants
- 3. Hyatt-Thermalito Diversion Dam power plant generation charged to aqueduct pumping plants (credits for this generation are reflected in the Delta Water Rate)
- 4. Replacement deposits for equipment at pumping plants and power plants
- 5. Credits from sale of excess SWP system power
- 6. Program costs (portion) to offset annual fish losses resulting from pumping at Banks Pumping Plant (Department of Water Resources-Department of Fish and Game agreement)

Note: Excludes costs recovered under the East Branch Enlargement Transportation Charge.

ous times and are not part of the annual statements;

- 3. Payments for sale and service of surplus water to entities other than contractors, pursuant to Article 21 of the standard provisions, are also excluded. Those payments are generally based on the unit rates shown in Table B-25. Net revenues resulting from noncontractor service are applied as indicated on page 24 of Bulletin 132-71; and
- 4. Payments under the Devil Canyon-Castaic contract for costs of the Devil Canyon-Castaic facilities allocable to power generation. Charges billed as a result of the contract are billed separately from those billed as a result of the water supply contract. Information about the treatment of such charges in relation to redetermined Transportation Charges is included in special attachments to the bills of the six participating contractors.

The time and method of payment for corresponding components of the Delta Water Charge and the Transportation Charge are as follows:

- The capital cost components of the Delta Water Charge and the Transportation Charge are paid in two semiannual installments, due January 1 and July 1 of each year, based on statements furnished by the State on or before July 1 of the preceding year;
- 2. The minimum OMP&R components of the Delta Water Charge and the Transportation Charge are paid in 12 equal installments, due the first of each month and based on statements furnished by the State on or before July 1 of the preceding year; and
- 3. The variable OMP&R component of the Transportation Charge is paid in varying monthly amounts and is due the fifteenth day of the second month following actual water delivery. charges are projected based on a unit charge per acre-foot established on or before July 1 of preceding year. Those unit charges may be revised during year to reflect current power costs and revenues. Unit charges are applied to actual monthly delivery quantities as determined by State on or before fifteenth day of the month following actual delivery.

# Bases for Allocating Reimbursable Costs Among Contractors

This section describes the procedures for allocating reimbursable costs of Project Transportation Facilities among contractors (see upper right portion of Figure B-1). Those costs do not include annual costs of Off-Aqueduct Power Facilities, which are explained in the section "Project Water Charges."

## **Capital and Minimum OMP&R Costs**

Figure B-4 includes information about the repayment reaches that form the basis for allocating reimbursable costs of the Project Transportation Facilities among contractors.

Allocations of reimbursable capital costs and minimum OMP&R costs of each reach are based on the proportionate maximum use of that reach by respective contractors under planned conditions of full development.

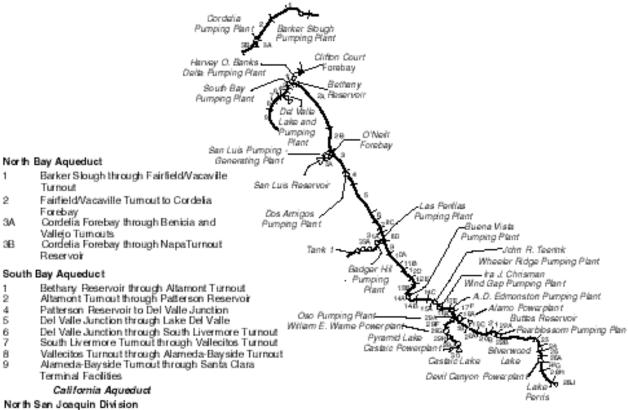
The derivation of ratios that represent the proportionate maximum use of each aqueduct reach by the respective contractors was first reported in Bulletin 132-70. The ratios in Bulletin 132-70 were subsequently revised for the North Bay Aqueduct, the South Bay Aqueduct, the California Aqueduct from the Delta to Castaic Lake, and the Coastal Branch.

All the revisions reported in previous bulletins regarding the derivation of ratios that represent the proportionate maximum use of each aqueduct reach by the respective contractors were last reported in Tables B-1 and B-2 of Bulletin 132-91. For 1998, the ratios for the California Aqueduct from the Delta to Silverwood Lake, plus Reach 31A, were revised to reflect the permanent transfer of 25,000 acre-feet from the Kern County Water Agency to the Mojave Water Agency.

*Table B-1* presents the reach ratios currently applicable to reimbursable capital costs.

Table B-2 presents corresponding ratios for allocating 1998 reimbursable minimum OMP&R costs among contractors. Requested excess capacity is omitted when deriving ratios applicable to capital costs because the capital costs for the excess capacity

Figure B-4 **Repayment Reaches and Descriptions** 



Delta through Bethany Reservoir Bethany Reservoir to Orestimba Creek

Orestimba Creek to O'Neill Forebay

#### San Luis Division

San Luis Dam, Reservoir and

Pumping-Generating Plant

3 O'Neil Forebay to Dos Amigos

Pumping Plant

4 Dos Amigos Pumping Plant to

Panodie Greek

Б Panoche Creek to Five Points

Five Points to Arroyo Pasajero 67

Arroy o Pasajer o to Kettleman City

#### South San Joaquin Division

Kettleman City through Milham Avenue Milham Avenue through Avenal Gap AD. Avenal Gap through Twisselman Road

10A Twisselman Road through Lost Hills

11B Lost Hills to 7th Standard Road

7th Standard Road through Elk Hills Road

Elk Hills Road through Tupman Road Tupman Road to Buena Vista Pumping Plant 12E

13B

Buena Vista Pumping Plant through 14A Santiago Creek

14B Santiago Creek through Old River Road

Old River Road to John R. Teerink 14C Wheeler Ridge Pumping Plant

John R. Teerink Wheeler Ridge Pumping Plant to Ira J. Chrisman Wind Gap Pumping Plant

Ira J. Chrisman Wind Gap Pumping Plant to A. D. Edmonston Pumping Plant

#### Tehachapi Division

A. D. Edmonston Pumping Plant to Carley V. 17E

Carley V. Porter Tunnel to Junction, West Branch, 17E California Aqueduct

#### California Aqueduct (continued)

#### Mojave Division

18A Junction, West Branch, California Aqueduct through Alamo Powerplant

Alamo Powerplant to Fairmont

19C Buttes Junction through Buttes Reservoir

20 A Fairmont through 70th Street West

20B 70th Street West to Palmdale

91 Palmdale to Littlerock Creek

22 A Littlerock Creek to Pearblossom Pumping Plant

99R Pearblossom Pumping Plant to West Fork Mojave River  $^{23}$ 

West Fork Molave River to Silverwood Lake

24 Cedar Springs Dam and Silverwood Lake

Silverwood Lake to South Portal, San Bernardino Tunnel South Portal, San Bernardino Tunnel through 25 26A

Devil Canyon Powerplant

Devil Canyon Powerplant to Barton Road Barton Road to Lake Perris 28G

28H

Perris Dam and Lake Perris 28.3

#### West Branch, California Aqueduct

Junction, West Branch, California 29 A Aqueduct through Oso Pumping Plant

Oso Pumping Plant through Quail Embankment Quail Embankment through William E. 29F

29 G

Warne Powerplant

9914 Pyramid Dam and Lake

Pyramid Lake through Castaic Powerplant 29.3

30 Castaic Dam and Lake

#### Coastal Branch, California Aqueduct

Avenal Gap to Devil's Den Pumping Plant

Devil's Den Pumping Plant through Tank 1

are paid on an incremental-cost basis and not a proportionate-use basis. However, requested excess capacity is accounted for in the ratios applicable to minimum OMP&R costs.

#### Variable OMP&R Costs

Article 26(a) includes provisions to ensure that the variable OMP&R component of the Transportation Charge will result in a return to the State of those costs that depend on and vary with the amount of SWP water deliveries. (The minimum OMP&R component results in a return of those operating costs that do not vary with deliveries.) Under Article 26(a) all such costs for a reach for a given year will be allocated among contractors in proportion to the actual annual use of that reach by the respective contractors.

*Table B-3* summarizes the total power costs and credits for each aqueduct pumping and power recovery plant. Those variable costs consist of:

- Costs of capacity and energy used exclusive of associated power transmission and station service charges (transmission and station service costs are classified as minimum OMP&R costs);
- Credits for capacity and energy produced at aqueduct power recovery plants (treated as negative costs); and
- Annual payments to sinking fund reserves to finance periodic replacement of major plant machinery components having economic lives shorter than the Project repayment period. Sinking fund payments for 1962 through 1979 were based on a schedule determined in 1970. Sinking fund payments for 1980 through 1996 are based on revised replacement schedules. Those schedules were updated in 1986 and 1991. The Department discontinued the sinking fund payments for replacements in 1997 and is reviewing the issue of replacement costs and charges.

Table B-3 excludes plant capacity and energy costs associated with surplus and unscheduled water service after May 1, 1973. Prior to that date, surplus water service was charged the same unit variable OMP&R component as entitlement water service. An amendment to the long-term water supply contracts in 1973 significantly changed the rate structure for surplus water service. Capacity and energy costs for

pumping surplus and unscheduled water were allocated directly to those water contractors receiving surplus and unscheduled water service. A contract amendment in 1991 again revised the rate structure to provide for payment of costs through a melded power rate. These revisions to charges for surplus and unscheduled water are effective from the date of the amendments and are not applied to past charges.

In 1994, an interruptible water program was established. This program is based on individual annual contracts; costs for interruptible water actually delivered are included in Table B-3.

#### **Water Conveyance**

The water conveyance quantities that form the basis for allocating costs are presented in Tables B-4, B-5A, B-5B, and B-6.

Table B-4 presents the schedules of annual entitlements as set forth in Table A and Article 6(a) of each water supply contract.

Table B-5A shows amounts of actual and projected entitlement water quantities delivered from each aqueduct reach to each contractor. Projected deliveries for years 1997 through 2035 are based on contractors' requests for future water deliveries. The quantities included in Table B-5A also include non-Project water delivered to contractors and surplus water deliveries prior to May 1, 1973, and actual interruptible water deliveries in 1994 and after.

Table B-5B presents a summary of actual and projected annual entitlement water quantities delivered or to be delivered to each contractor. The quantities also include amounts of non-Project water and surplus water delivered prior to May 1, 1973, and actual deliveries of interruptible water in 1994 and after.

Table B-6 summarizes the annual entitlement water quantities conveyed or to be conveyed through each aqueduct pumping plant or power plant for each of the following functions:

 Deliveries-Water Supply. Water made available to contractors at down-aqueduct delivery structures, including certain hypothetical quantities to facilitate cost allocations, for those years when Appendix B Bulletin 132-97

deliveries are made from net annual storage withdrawals. The net annual amounts of storage withdrawals are hypothetically added to the actual amounts conveyed from the Delta to the reservoirs, since deliveries made from storage withdrawals bear the same variable OMP&R costs per acre-foot as they would if the deliveries were actually conveyed from the Delta in that year. The hypothetical increases in the deliveries made from reservoir storage withdrawals are offset by equal credits to the minimum OMP&R costs of the respective reservoirs. Thus, the variable OMP&R components per acre-foot (Table B-17) may be applied to the total annual quantities delivered either from aqueduct reservoir storage or from the Delta.

- Initial Fill Water. Water required for initial filling of down-aqueduct reaches and reservoirs or for repayment of pre-consolidation water used during construction.
- Deliveries-Recreation. Water delivered to downaqueduct recreation developments or used for fish and wildlife mitigation or enhancement.
- Operational Losses. Water lost through evaporation and seepage from all down-aqueduct reaches.
- Reservoir Storage Changes. Water placed in down-aqueduct reservoir storage after initial filling of the reservoirs, including projected net annual storage accretions (positive values) and withdrawals (negative values) for all down-aqueduct reservoirs of the Project Transportation Facilities.

Those variable OMP&R costs (Table B-12) that are allocable to storage accretions are assigned to the minimum OMP&R costs of the respective reservoirs. With one exception, "Reservoir Storage Changes" also includes SWP water placed into Southern California groundwater storage from 1978 through 1982 (as positive amounts); and water withdrawn from storage and delivered to contractors in 1979, 1982, 1987, 1988, and 1989 (as negative amounts). The exception is Banks Pumping Plant, where groundwater additions and withdrawals are included in "Conservation Water."

Table B-6 also summarizes the following two amounts under the heading "Conservation Water" (Column 25):

- 1. Net annual water amounts stored and projected to be stored in San Luis Reservoir; and
- 2. Water lost and projected to be lost through evaporation and seepage from San Luis Reservoir and from the water conservation portion of the California Aqueduct.

"Conservation Water" includes initial fill water, operational losses, and net annual storage changes associated with San Luis Reservoir and the portion of the California Aqueduct that is allocated to conservation. The same allocation procedure outlined above for Transportation Facilities also applies to water delivered from storage in Conservation Facilities, except that the hypothetical cost increases are added to the variable OMP&R cost to be reimbursed through the Transportation Charge and deducted from the minimum OMP&R costs to be reimbursed through the Delta Water Charge.

San Luis Reservoir is operated to conserve water for future delivery to downstream contractors. To account for costs associated with reservoir storage, those power and replacement costs of Banks Pumping Plant (a joint Transportation-Conservation Facility) that are allocated to the conveyance of annual conservation water quantities are transferred to the capital costs of San Luis Reservoir (during initial fill) or to the minimum OMP&R costs of San Luis Reservoir (subsequent to initial fill).

In years of net storage withdrawal from San Luis Reservoir, a portion of the minimum OMP&R cost of the reservoir is transferred to the variable OMP&R cost of Banks Pumping Plant. That transfer is equal to the variable OMP&R cost per acre-foot of delivery through Banks Pumping Plant for that year, multiplied by the acre-feet of deliveries derived from San Luis Reservoir storage for that year. Table B-6 also includes amounts of nonproject water and surplus water delivered prior to May 1, 1973, and actual deliveries of interruptible water in 1994 and after.

## **Bases for Reimbursable Costs**

This section describes the methods used to derive the costs allocated by the procedures outlined in the preceding section. A diagram of the cost derivation process is shown in the upper-left quadrant of Figure 1.

First, the capital and minimum OMP&R costs of all SWP facilities are allocated among the various Project purposes according to the allocation percentages in Table 1. Those percentages may be subject to revision in the future.

The redeterminations in this appendix involve only the SWP costs that are allocated to water supply and power generation.

#### **Capital Costs**

Capital costs used in the redeterminations in this appendix reflect prices prevailing on December 31, 1996; future cost escalation will be reflected in subsequent bulletins.

Table B-7 presents a reconciliation of estimated total capital costs of each Project Conservation Facility and each Project Transportation Facility. This table shows the relationship of Project Conservation and Transportation costs allocated to contractors (Tables B-8, B-9, B-10, and B-13) to the total SWP capital costs projected by the Department.

Table B-8 shows costs incurred and projected to be incurred by the State in connection with each contractor's turnouts. Costs incurred by the State for both State-constructed and contractor-constructed delivery structures are paid directly by the contractors for whom the structures are built. (The State incurs design review and construction inspection costs in connection with contractor-constructed turnouts.)

Table B-9 lists costs and payments for excess capacity built into SWP Transportation Facilities according to amendments to contracts with the Metropolitan Water District of Southern California, San Gabriel Valley Municipal Water District, and Antelope Valley-East Kern Water Agency as follows:

- 1. Additional costs incurred by the State for requested excess capacity;
- 2. Advances by water contractors of funds for such costs; and
- 3. Credits for advances in excess of costs, which were applied to respective contractors' installments of the capital cost component of the Transportation Charge in 1981.

Under Amendment 2 of MWD's contract, 809 cfs of excess capacity was originally constructed in reaches of the West Branch at MWD's request. That capacity was reclassified as basic capacity of SWP Transportation Facilities under Amendment 7. MWD paid \$16.3 million as a prepayment of the capital cost component of the Transportation Charge in lieu of advancing funds for the original requested capacity.

Amendment 5 to MWD's contract requires that additional costs for modifications to the Santa Ana Valley Pipeline (required for enlargement of Lake Perris) will be allocated to MWD and returned to the State through payments of the Transportation Charge. The additional costs to be repaid through MWD's capital cost component for the aqueduct reach from Devil Canyon Powerplant to Barton Road total about \$6.7 million (see Bulletin 132-72, page 98).

Table B-10 presents the actual and projected annual capital costs of each aqueduct reach that will eventually be returned to the State, with interest, through contractors' payments of the capital cost component of the Transportation Charge and payment of debt service under the Devil Canyon-Castaic contracts.

#### **Annual Operating Costs**

Annual operating costs allocable to water supply and power generation are returned to the State through the minimum and variable OMP&R components of Delta Water and Transportation Charges and through a portion of the revenues from energy sales. All reimbursable operating costs of Conservation Facilities are included in the minimum OMP&R component of the Delta Water Charge.

# Transportation and Devil Canyon-Castaic Contract Costs

Table B-11 shows the amounts of the actual and projected costs to be reimbursed through payments of the minimum OMP&R component of the Transportation Charge and allocated operating costs under the Devil Canyon-Castaic contract. The table includes the following seven types of operating costs incurred annually that do not vary with water quantities delivered to the contractors:

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- 1. All direct labor charges for field operation and maintenance personnel, including associated indirect costs:
- 2. A distributed share of general operating costs that cannot be identified solely with one facility or aqueduct reach;
- 3. Electric power transmission and station service costs allocable to aqueduct pumping and power recovery plants;
- 4. All costs for equipment, materials, and supplies;
- 5. Portions of the power and replacement costs of all up-aqueduct pumping and power plants that are allocable to the annual conveyance of water

- lost to evaporation and seepage from respective aqueduct reaches or placed into storage in respective reservoirs of the Project Transportation Facilities (after initial fill);
- 6. Credits, which offset those costs in (5) above, for deliveries drawn from reservoir storage; and
- 7. Escalation of projected operating costs at 3 percent per year for 1998 and 1999.

*Table B-12* shows the portions of variable OMP&R costs in Table B-3 that are allocable to the water supply delivery quantities included in Table B-6 and

Table 1 **Cost Allocation Factors (Percentages)** 

		upply and Generation	All Other Purposes (Nonreimbursable)				
Project Facilities	Capital Costs	Minimum OMP&R Costs	Capital Costs	Minimum OMP&R Costs			
Project Conservation Facilities							
Frenchman Dam and Lake	21.5	0.0	78.5	100.0			
Antelope Dam and Lake	0.0	0.0	100.0	100.0			
Grizzly Valley Dam and Lake Davis	1.0	1.8	99.0	98.2			
Oroville Division (a	97.1	99.5	2.9	0.5			
California Aqueduct, Delta to Dos Amigos Pumping Plant	96.6	96.7	3.4	3.3			
Delta Facilities	86.0	86.0	14.0	14.0			
Transportation Facilities							
Grizzly Valley Pipeline	100.0	100.0	0.0	0.0			
North Bay Aqueduct	100.0	100.0	0.0	0.0			
South Bay Aqueduct							
Del Valle Dam and Lake Del Valle	25.2	22.0	74.8 (b	78.0 (c			
Remainder of South Bay Aqueduct	100.0	100.0	0.0	0.0			
California Aqueduct							
Delta to Dos Amigos Pumping Plant	96.6	96.7	3.4	3.3			
Delta Pumping Plant to termini (excluding Coastal Branch)	94.3	96.9	5.7	3.1			
Coastal Branch	100.0	100.0	0.0	0.0			

a) Percentages indicated are applicable to the remaining costs of division after excluding costs allocated to flood control that are reimbursed by the federal government (22 percent of capital costs) and excluding specific power costs of Edward Hyatt and Thermalitip powerplants and switchyards.
b) Percentage indicated consists of 48.8 percent of costs allocated to recreation and 26.8 percent to flood control.

c) Percentage indicated consists of 44.9 percent of costs allocated to recreation and 33.1 percent to flood control.

reimbursed through payments of the variable OMP&R component of the Transportation Charge.

The following five adjustments are made to the Table B-3 costs to derive the Table B-12 costs:

- Part of the variable OMP&R costs of each plant is allocated to recreation. The allocation to recreation is in proportion to the quantity of water conveyed through each plant each year for delivery to on-shore recreational developments.
- 2. That portion of variable plant costs attributable to the initial fill of aqueduct reaches is allocated to the joint capital costs of respective downaqueduct reaches and reservoirs.
- 3. That portion of costs attributable to evaporation and seepage is allocated to the joint minimum OMP&R costs of respective down-aqueduct reaches and reservoirs.
- 4. Adjustments are made for additions or withdrawals from storage in aqueduct reservoirs. In years when water is added to storage in aqueduct reservoirs, the cost of conveying this water into storage is charged to the minimum OMP&R costs of the corresponding reservoir. The unit cost is equal to the variable OMP&R unit rate for the year the water is conveyed into storage. In years when storage in aqueduct reservoirs is decreased for the purpose of making deliveries, a credit is applied to the minimum OMP&R costs of the reservoir from which the storage is released. This credit is equal to the number of acre-feet of storage reduction times the variable OMP&R unit rate for the year storage is released.
- 5. That portion of costs attributable to pumping water to replace evaporation and seepage losses and for additions or withdrawals from storage in San Luis Reservoir is charged to the minimum OMP&R component of the Delta Water Rate.

The remaining costs are allocated to Transportation water supply and repaid by the contractors.

#### **Conservation Capital and Operating Costs**

Table B-13 is a summary of actual and projected capital and operating costs of the initial Project Conservation Facilities. These costs are reimbursed through payments by contractors under the Delta Water Charge, Oroville power sales, and Gianelli Pumping-

Generating Plant credits. Table B-13 also shows credits applied to the reimbursable capital costs of the Project Conservation Facilities according to negotiated settlements concerning incurred planning costs for the period from 1952 through 1978.

# **Project Water Charges**

This section describes the redetermination of past and projected components of the Transportation Charge for annual revision of Tables C through G of each water supply contract. This section also describes the derivation of the unit Delta Water Rates and the Water System Revenue Bond Surcharge.

A summary of equivalent unit charges for each acrefoot of entitlement water service is also included for each contractor and each aqueduct reach. A diagram of all calculations may be found in the lower half of Figure 1.

#### **Transportation Charges**

The accumulation of allocated costs of each aqueduct reach to each contractor is the basis for the Transportation Charge components.

Table B-14 summarizes each contractor's share of the capital costs of aqueduct reaches presented in Table B-10. Those amounts are determined by applying proportionate-use ratios set forth in Table B-1 to the costs in Table B-10. The resulting allocated costs are set forth in Table C of the respective water supply contracts.

Prepayments of the capital cost component, required under MWD's Amendment 7, are included as negative capital costs in Table B-14 and Table C of MWD's Statement of Charges for 1998. Solano County Water Agency, Empire West Side Irrigation District, and Castaic Lake Water Agency also prepaid capital costs (see Table B-14 footnotes). Table B-14 includes the costs of the planned East Branch Extension to provide water service to San Bernardino Valley Municipal Water District and San Gorgonio Pass Water Agency.

Both Table B-14 and Table C of the six contracts for Project water service below Devil Canyon Powerplant and Castaic Powerplant include the capital Appendix B Bulletin 132-97

costs reimbursable under the Devil Canyon-Castaic contract.

Table B-15 summarizes capital cost components of the Transportation Charge for each contractor for each year of the Project repayment period. The capital cost components shown in Table B-15 will recover the costs shown in Table B-14 by 2035, with interest at the Project Interest Rate of 4.620 percent per annum and based on the amortization schedules included in Table 2.

Those estimated components, subsequently adjusted for prior overpayments or underpayments, are included in Table D of the water supply contracts. Costs of excess capacity are billed separately and are not included in Table B-15.

Table B-15 includes the debt service payments due from the six contractors down-aqueduct from Devil Canyon Powerplant and Castaic Powerplant according to terms of the Devil Canyon-Castaic contract.

Table B-16A summarizes the minimum OMP&R components of the Transportation Charge for each year of the Project repayment period. Those estimated components, subsequently adjusted for prior overpayments or underpayments, are included in Table E of the respective contracts.

The total amounts included in Table B-16A are determined by applying the proportionate-use ratios in Table B-2 to the reach costs in Table B-11. Table B-16A excludes charges for Off-Aqueduct Power Facilities, which are included separately in Table B-16B. Both Table B-16A and Table E for the six contractors down-aqueduct from Devil Canyon Powerplant and Castaic Powerplant include the portion of operating costs payable under the Devil Canyon-Castaic contract

Prior to 1997, as part of operating agreements with the Department, Kern County Water Agency was billed for any additional operating costs caused by early installation of units in Las Perillas and Badger Hill Pumping Plants by Berrenda Mesa Water Storage District (see Bulletin 132-71, page 7). Under those agreements, a portion of minimum OMP&R costs of Reach 31A were assigned directly to KCWA, with the remaining reach costs allocated by

application of the proportionate-use ratios shown in Table 3. The Department purchased Units No. 6 at Las Parillas and Badger Hill pumping plants in early 1997 to provide pumping capacity for deliveries to Coastal Area contractors which began in 1997.

Table 2
Criteria for Amortizing Capital Costs of
Transportation Facilities

•	
	Year of
	Initial
Contractor	Payment (a
Alameda County Flood Control	
and Water Conservation District, Zone 7	1963 (b
Alameda County Water District	1963
Antelope Valley-East Kern Water Agency	1963
Castaic Lake Water Agency	1964
City of Yuba City	(c
Coachella Valley Water District	1964
County of Butte	(c
County of Kings	1968
Crestline-Lake Arrowhead Water Agency	1964
Desert Water Agency	1963 (d
Dudley Ridge Water District	1968 (e
Empire West Side Irrigation District	1968 (e
Kern County Water Agency	
Agricultural Use	1968 (e
Municipal and Industrial Use	1965
Littlerock Creek Irrigation District	1964
Mojave Water Agency	1964
Napa County Flood Control and Water Conservation District	1966
Oak Flat Water District	1968 (e
Palmdale Water District	1964
Plumas County Flood Control	1304
and Water Conservation District	1970
San Bernardino Valley Municipal Water District	1963
San Gabriel Valley Municipal Water District	1963 (d
San Gorgonio Pass Water Agency	1963 (d
San Luis Obispo County Flood Control	
and Water Conservation District	1964 (f
Santa Barbara County Flood Control	
and Water Conservation District	1964
Santa Clara Valley Water District	1963
Solano County Water Agency	1973
Metropolitan Water District of Southern	
California	1963
Tulare Lake Basin Water Conservation District	1968 (e
Ventura County Flood Control District	1964

- a) Allocated capital costs of transportation facilities amortized in equal annual installments unless otherwise noted.
- b) Principal payments on each annual capital cost prior to 1971 delayed until calendar year 1972, except payments for 1963.
- c) For Yuba City and Butte County payments for Delta Water Charge only.
- only.
  d) Payment deferred for 1963 and added to 1964 payment with accrued interest.
- e) For Dudley Ridge Water District, Empire West Side Irrigation District, Kern County Water Agency (agricultural use), Oak Flat Water District, and Tulare Lake Basin Water Conservation District, according to Article 45 of the contracts for supply of agricultural water, capital costs of transportation facilities allocated to agricultural water supply are amortized by using an equivalent unit rate per acre-foot applied to the annual entitlements (Table B-4) through the project repayment period.
- f) For San Luis Obispo Flood Control and Water Conservation District and Santa Barbara County Flood Control and Water Conservation District, all principal and interest payments for costs of the Coastal Stub were deferred until 1976.

Table 3
Minimum OMP&R Costs of Reach 31A
Assigned Directly to Kern County
Water Agency

Year	Direct Charges
1969	46,510
1970	46,302
1971	140,072
1972	95,016
1973	72,452
1974	100,688
1975	127,456
1976	138,500
1977	120,749
1978	157,638
1979	121,207
1980	150,715
1981	74,749
1982	82,819
1983	89,947
1984	106,720
1985	158,847
1986	136,604
1987	125,671
1988	130,919
1989	127,867
1990	136,678
1991	137,604
1992	184,362
1993	214,905
1994	351,132
1995	277,183
1996	393,887
Total	4,047,199

Table B16-B summarizes the annual charges for Off-Aqueduct Power Facilities allocated to each water contractor, adjusted for prior overpayments or underpayments of charges. Those charges are to repay all Off-Aqueduct Power costs, including bond service, deposits for reserves, operation and maintenance costs, fuel costs, taxes, and insurance.

Adopted October 1, 1979, the General Bond Resolution requires that sufficient revenues be collected each year to repay all of those costs. In addition, an amount totaling 25 percent of the annual bond service is collected each year to ensure that sufficient funds are available to cover all annual costs. Any revenues collected and not needed during the year are refunded to the contractors in the next year.

Table 4 summarizes Off-Aqueduct Power Facility charges and credits related to deliveries for 1996.

Table 4
Summary of Off-Aqueduct Power Facility
Charges and Credits

Item	1996 Charges
Reid Gardner Powerplant	61,786,141
Bottle Rock Powerplant	12,550,019
South Geysers Powerplant	5,716,960
Subtotal	80,053,120
Item	1996 Credits
Power sales	9,135,029
Miscellaneous water	
Alameda County, Zone 7	12,734
Subtotal	9,147,763
Grand Total	70,905,357

Table 5 shows projected charges for Off-Aqueduct Power Facilities and an amount equal to 25 percent of annual bond service for 1997 and each year thereafter.

The annual charges for Off-Aqueduct Power Facilities are allocated among contractors in proportion to the electrical energy required to pump entitlement water for the year. The initial allocation for the Statements of Charges is based on estimates of energy to pump requested entitlement water deliveries.

An interim adjustment in the allocation of Off-Aqueduct Power costs may be made in May of each year based on updated cost estimates and April revisions in water delivery schedules for annual entitlement. An additional adjustment is made the following year based on actual entitlement water deliveries and actual costs for the year.

The energy required to pump each contractor's entitlement water is calculated using the kilowatt-hour per acre-foot factors (shown in Table 6) for the pumping plants upstream from the delivery turnouts. The amounts include transmission losses.

Table B-17 presents a summary of actual and projected total variable OMP&R costs for each acre-foot of water conveyed through each aqueduct pumping plant and power plant for each year of the Project repayment period. Those data are derived according to the following procedure specified in Article 26(a) of the Standard Provisions for calculating the variable OMP&R component of the Transportation Charge:

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 An annual charge per acre-foot of projected water deliveries to all contractors served from or through each reach is determined so the projected variable OMP&R costs to be incurred for each reach will be returned to the State.

 The total annual variable OMP&R component for any contractor for a given reach is obtained by multiplying the unit charge associated with that reach by the quantity of water actually delivered from or through the reach to the contractor.

The data summarized in Table B-17 are derived by dividing the costs shown in Table B-3 by the quantities of water shown in Table B-6. However, certain costs included in Table B-3 for extra peaking service, which would otherwise constitute variable OMP&R costs, are assigned directly to contractors requesting this type of service (see Bulletin 132-71, page 21, and Water Service Contractors Council Memo No. 593, July 10, 1970). Those costs are excluded from the unit charges shown in Table B-17. Peaking charges based on additional capacity ceased in 1983. Since 1984, costs are based on market energy rates. The amounts of extra peaking charges for additional power costs are shown in Table 7 and Table 8.

The unit rates shown in Table B-17 constitute the rates for the pumping plants and power plants listed. The cumulative rates constitute the total rates, cumulative from the Sacramento-San Joaquin Delta, and are applicable to deliveries from or downstream of the pumping plants and power plants. Extra peaking service costs are excluded.

Table B-18 shows the variable OMP&R components of the Transportation Charge for each contractor for each year of the Project repayment period. Table B-18 is developed from the costs per acre-foot included in Table B-17 and the delivery quantities for each contractor from each reach as indicated in Table B-5A, plus any costs for extra peaking service. Those estimated components, subsequently adjusted for prior overpayments or underpayments, are included in Table F of the respective water supply contracts.

Table B-19 summarizes the annual Transportation Charges for each contractor (the sums of the corresponding amounts included in Tables B-15, B-16A, B-16B, and B-18). Those estimated payments, subsequently adjusted for prior overpayments or underpay-

ments, are set forth in Table G of the respective water supply contracts.

Table 5
Projected Charges for Off-Aqueduct Power
Facilities

Year	Total Annual Cost	25% Bond Service
1997	98,293,545	10,041,638
1998	106,742,112	10,012,376
1999	108,072,028	10,029,897
2000	107,758,647	9,972,380
2001	107,730,798	9,971,540
2002	100,031,806	9,975,836
2003	88,210,415	7,596,414
2004	90,067,941	7,603,520
2005	96,590,742	8,278,577
2006	96,646,003	9,288,274
2007	96,630,241	9,285,477
2008	115,405,491	13,038,777
2009	115,358,654	13,026,251
2010	115,358,037	13,021,781
2011	115,371,622	13,018,066
2012	115,670,123	13,077,318
2013	52,026,885	4,424,157
2014	23,181,490	4,443,298
2015	9,846,490	1,776,298
2016	4,889,115	977,823
2017	2,216,365	443,273
2018	2,215,615	443,123
2019	2,222,865	444,573
2020	2,231,115	446,223
2021	2,227,490	445,498
2022	2,232,896	446,579
2023	2,239,397	447,880
2024	4,629,222	925,845

Both Table B-19 and Table G for the six contractors down-aqueduct from Devil Canyon Powerplant and Castaic Powerplant include amounts of debt service and operating cost payments due according to provisions of the Devil Canyon-Castaic contract.

Table 6
Kilowatt-Hour Per Acre-Foot Factors for Allocating
Off-Aqueduct Power Facility Costs

	kWh per	acre-foot (a
	At	Cumulative
Pumping Plant	Plant	from Delta
Barker Slough	223	223
Cordelia-Benicia	434	657
Cordelia-Vallejo	178	401
Cordelia-Napa	563	786
Harvey O. Banks Delta	296	296
South Bay (including Del Valle)	869	1,165
Dos Amigos	138	434
Buena Vista	242	676
Teerink	295	971
Chrisman	639	1,610
A.D. Edmonston	2,236	3,846
Pearblossom	703	4,549
Oso	280	4,126
Las Perillas	77	511
Badger Hill	200	711
Devil's Den	705	1,416
Bluestone	705	2,121
Polonio Pass	705	2,826
a) Includes transmission losses		

## **Delta Water Charges**

Table B-20A presents the calculation of the Delta Water Rate for the initial Conservation Facilities applicable in 1998 according to the amended Articles 22(e) and 22(g) of all 29 contracts. The Delta Water Rate was calculated at a Project Interest Rate of 4.620 percent based on Conservation Facility costs shown in Table B-13. That Delta Water Rate is used to compute projected Delta Water Charges under Article 53(i) for the contractors who have executed the Monterey Amendment. Included in Table B-20A is the Delta Water Rate for the four contractors who have not executed the Monterey Amendment (Yuba City, Plumas County, Empire, and Ventura). Delta Water Charges for each contractor are shown in Table B-21.

*Table B-20B* shows each component of the 1998 Delta Water Rate from Table B-20A.

Table B-21 summarizes the annual Delta Water Charge for each contractor. The projected charges in Table B-21 are developed by multiplying the total rate per acre-foot, as shown in Table B-20A, by the

amount of entitlement water for each contractor as shown in Table B-4.

#### **Water System Revenue Bond Surcharge**

Table B-22 summarizes the Water System Revenue Bond Surcharge to the Delta Water Charge and the Transportation capital cost component of each contractor. The surcharge shown in Table B-22 includes the financing costs of WSRB Series B through R. This surcharge is levied according to an amendment to the water supply contracts for repaying Water System Revenue Bond financing costs. All long-term water supply contractors signed that amendment.

#### **Total Water Charges**

Table B-23 summarizes the total annual charges to each contractor (the sum of the Transportation Charge in Table B-19, the Delta Water Charge in Table B-21, and the Water System Revenue Bond Surcharge in Table B-22). The charges do not reflect past payments by contractors and are unadjusted for prior overpayments or underpayments.

#### **Equivalent Total Water Charges**

Table B-24 presents the Transportation Charge and Delta Water Charge in terms of the equivalent unit charge for each acre-foot of entitlement water now projected for delivery to the respective contractors.

These equivalent charges would provide the same principal sum at the end of the Project repayment period as annual payments to be made as part of the Delta Water Charge and Transportation Charge, plus interest at the Project Interest Rate, if applied to each acre-foot of entitlement water delivered to date; all surplus water delivered prior to May 1, 1973; and all entitlement water now projected to be delivered during the remainder of the Project repayment period (Table B-5B).

The equivalent unit Delta Water Charges included in Table B-24 are greater than those in Table B-20A because current projections of entitlement water service are less for most contractors than the amounts shown in Table A.

#### **Equivalent Water Costs by Reach**

Table B-25 presents a summary of the equivalent unit Transportation cost of conveying entitlement water

Table 7
Extra Peaking Charges for Additional Power, by Pumping Plant (in Dollars)

Year	Cordelia Napa	Cordelia Solano	Barker Slough	South Bay	Banks	Dos Amigos	Las Perillas and Badger Hill	Buena Vista	Teerink- Wheeler Ridge	Chrisman	Edmonston	Pearblossom	Oso	Total
1972	0	0	0	0	0	10,579	24,700	0	0	0	0	0	0	35,279
1973	0	0	0	0	0	0	6,016	0	0	0	0	0	0	6,016
1974	0	0	0	0	0	0	7,140	0	0	0	0	0	0	7,140
1975	0	0	0	0	0	494	6,397	0	0	0	0	0	0	6,891
1976	0	0	0	0	0	0	1,981	0	0	0	0	0	0	1,981
1977	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	45,145	3,680	0	0	0	0	0	0	48,825
1979	0	0	0	0	0	0	3,306	0	0	0	0	0	0	3,306
1980	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	12,126	0	0	0	0	0	0	0	12,126
1982	0	0	0	0	0	89,339	0	0	0	0	0	0	0	89,339
1983	0	0	0	35	7,535	3,506	144	0	0	0	0	0	0	11,220
1984	0	0	0	2,096	84,396	38,607	7,203	11,173	3,823	3,593	0	0	0	150,891
1985	0	0	0	1,480	19,612	8,841	763	4,488	4,412	8,929	28,353	0	0	76,878
1986	0	0	0	0	1,881	871	0	291	353	767	2,682	0	0	6,845
1987	0	0	0	606	17,475	7,998	1,161	2,295	1,806	3,460	11,058	0	0	45,859
1988	639	65	287	891	43,469	20,079	1,863	5,790	4,362	8,268	25,885	0	0	111,598
1989	2,491	966	1,483	71	40,249	18,641	1,935	3,398	1,530	2,056	3,794	0	0	76,614
1990	46	0	18	325	18,506	8,571	0	143	136	295	610	0	0	28,650
1991	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1992	77	0	23	0	5,568	2,076	1,069	132	140	321	0	0	0	9,406
1993	0	0	0	4,203	86,753	38,412	3,171	5,289	4,518	9,861	33,110	10,566	0	195,883
1994	0	537	644	287	18,655	8,647	2,934	1,760	578	1,251	4,138	679	241	40,351
1995	0	0	0	568	22,452	10,371	2,269	5,338	6,166	13,250	45,663	14,337	0	120,414
1996	5	0	2	731	15,357	6,304	227	2,110	2,572	5,571	19,272	6,050	0	58,201
Total	3,258	1,568	2,457	11,293	381,908	330,607	75,959	42,207	30,396	57,622	174,565	31,632	241	1,143,713

Table 8 **Extra Peaking Charges for Additional Power, by Contractor (in Dollars)** 

Year	Napa	Solano	Alameda Zone 7	ACWD(a	SCV WD(b	Dudley Ridge	Empire West Side	Kern County	County of Kings		Tulare	AVEK(c	Castaic Lake	Coachella Valley	Desert Water Agency	LCID(d	Palmdale	SGVM WD(e	Total
1972	0	0	0	0	0	0	0	35,269	0	0	10	0	0	0	0	0	0	0	35,279
1973	0	0	0	0	0	0	0	6,016	0	0	0	0	0	0	0	0	0	0	6,016
1974	0	0	0	0	0	0	0	7,140	0	0	0	0	0	0	0	0	0	0	7,140
1975	0	0	0	0	0	0	0	6,891	0	0	0	0	0	0	0	0	0	0	6,891
1976	0	0	0	0	0	0	0	1,981	0	0	0	0	0	0	0	0	0	0	1,981
1977	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	2,035	0	44,484	42	0	0	2,264	0	0	0	0	0	0	
1979	0	0	0	0	0	0	0	2,821	0	0	0	0	485	0	0	0	0	0	3,306
1980	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	11,951	0	0	0	0	0	0	0	175	0	0	12,126
1982	0	0	0	0	0	2,173	0	80,945	0	0	0	4,671	1,128	0	0	0	0	422	89,339
1983	0	0	0	0	48	9,448	0	0	1,355	0	0	0	369	0	0	0	0	0	11,220
1984	0	0	0	0	2,874	0	0	144,021	281	809	0	0	2,906	0	0	0	0	0	150,891
1985	0	0	0	2,029	0	0	64	25,664	0	98	0	48,767	256	0	0	0	0	0	76,878
1986	0	0	0	0	0	0	0	0	0	13	2,219	4,613	0	0	0	0	0	0	6,845
1987	0	0	230	0	601	313	84	24,134	0	95	0	18,206	1,383	0	0	813	0	0	45,859
1988	891	99	662	561	0	1,853	1,404	58,539	0	72	2,368	44,523	626	0	0	0	0	0	111,598
1989	3,477	1,463	96	0	0	14	403	55,074	0	239	8,280	0	1,043	0	0	1,035	5,490	0	76,614
1990	64	0	445	0	0	0	0	27,092	0	0	0	0	0	0	0	77	972	0	28,650
1991	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1992	100	0	0	0	0	0	32	7,552	653	0	0	0	1,069	0	0	0	0	0	9,406
1993	0	0	5,740	0	0	0	3,621	47,078	3,344	0	66,546	0	2,491	23,675	39,003	0	4,385	0	195,883
1994	0	1,181	394	0	0	0	396	25,071	851	0	0	0	7,977	1,667	2,733	81	0	0	40,351
1995	0	0	779	0	0	11,579	0	10,691	2,351	0	0	0	2,178	0	90,142	2,694	0	0	120,414
1996	7	0	77	2,493	0	113	312	3,550	3,442	0	8,801	0	227	12,618	20,619	0	3,132	2,810	58,201
Total	4,539	2,743	8,423	5,083	3,523	27,528	6,316	625,964	12,319	1,326	88,224	123,044	22,138	37,960	152,497	4,875	13,979	3,232	1,094,888

a) Alameda County Water Agency
 b) Santa Clara Valley Water District
 c) Antelope Valley-East Kern Water Agency
 d) Littlerock Creek Irrigation District
 e) San Gabriel Valley Municipal Water District

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through respective aqueduct reaches of the Project Transportation Facilities.

Those unit costs provide the basis of charges assessed for extra service (such as for delivery of entitlements down-aqueduct from a contractor's turnout) and for wheeling service to entities other than the long-term water supply contractors.

The cumulative unit conveyance costs indicated for reaches in Table B-25 do not necessarily equal the equivalent unit Transportation Charges to contractors served from such reaches. The unit charges in Table B-24 account for the rate of water demand buildup and cost allocation factors of the individual contractors; however, the unit costs included in Table B-25 reflect the effect of melding the respective buildups and allocation criteria of all contractors whose entitlements are conveyed through a given reach. Table B-25 also includes surplus water prior to May 1, 1973.

# **East Branch Enlargement Facility Charges**

Table B-26 reflects the Department's projection of annual capital costs of the East Branch Enlargement Facilities for each aqueduct reach. Those projections will be redetermined in future bulletins to include:

- 1. A reallocation of costs of constructing the present East Branch facilities between Alamo Powerplant and Silverwood Lake;
- 2. A reallocation of costs of Silverwood Lake to reflect additional use as a result of East Branch Enlargement operation;
- 3. Reallocation of costs of San Bernardino Tunnel to reflect redistribution of flow capacities necessary for the East Branch Enlargement Facilities;
- 4. Actual construction costs of the enlargement.

These costs will be recovered with interest from the seven Southern California water contractors participating in the enlargement, according to their amended water supply contracts (see Table 9).

Table B-27 lists the projected minimum OMP&R costs for each reach of the enlargement to be repaid

by the seven contractors participating in the East Branch Enlargement. Currently, this table includes only the amounts of estimated incremental minimum OMP&R costs attributable to the East Branch Enlargement. According to Article 49 (e)(1), the contractors participating in the East Branch Enlargement will also share in the remaining minimum OMP&R costs of the affected reaches according to a formula to be developed by the Department in consultation with the affected contractors. Once the formula is developed, subsequent versions of this table will reflect the transfer of a share of the minimum OMP&R costs now included in Table B-11.

*Table B-28* shows each participating contractor's share of the estimated capital costs of the East Branch Enlargement shown in Table B-26.

Table B-29 shows the amounts of the annual capital cost components of the East Branch Enlargement Transportation Charge for each participating contractor. This component consists of each contractor's allocated share of debt service on bonds sold to finance the enlargement.

Table B-30 shows the minimum OMP&R components of the East Branch Enlargement Transportation Charge for each participating contractor for each year of the Project repayment period. The amounts shown in Table B-30 will recover the minimum OMP&R costs shown in Table B-27.

Table B-31 shows the annual East Branch Enlargement Transportation charges for each participating contractor (the sums of the corresponding amounts included in Table B-29 and B-30).

# **Short-Term Agreements**

The long-term water supply contractors and the Department have executed a short-term agreement that affects the contractors' charges. A 5-year variable OMP&R agreement provides that for the period from 1994 through 1998 the Department will revise the assumptions used in determining the projected variable OMP&R unit rates to reflect reduced water deliveries.

Table 9

Determination of Factors for Distributing Capital and Minimum OMP&R Costs of East Branch Enlargement Facilities Among Participating Contractors

Danah				1 domines Ai								
Reach Number	Dosc	ription										
18A		•	ia Aqueduct th	rough Alamo Po	wernlant							
19	•	,	iia Aqueuuci, iii	rough Alamo Po	werplant							
	Alamo Powerpla		laat									
20A	Fairmont throug	•	rest									
20B	70th Street Wes											
21	Palmdale to Litt											
22A	Littlerock Creek											
22B	Pearblossom P		•									
23B	-		,	xcluding Mojave	Siphon Powerpla	ant facilities)						
23C	Mojave Siphon	•										
24	Cedar Springs I	r Springs Dam and Silverwood Lake										
25	Silverwood Lake	erwood Lake to South Portal, San Bernardino Tunnel										
26A	South Portal, Sa	uth Portal, San Bernardino Tunnel through Devil Canyon Powerplant										
26B	Devil Canyon Powerplant Bypass											
Share of Englargement Capacity (cfs)												
San  Antologo Motropoliton												
	Antelope					Bernardino	Metropolitan					
	Valley-	Coachella	_			Valley	Water					
D- 1	East Kern	Valley	Desert	Mojave	Palmdale	Municipal	District of					
Reach	Water	Water	Water	Water	Water	Water	Southern	Tatal				
Number	Agency	District	Agency	Agency	District	District	California	Total				
18A		151	13	136	6		1200	1506				
19		151	13	136	6		1200	1506				
20A	35	151	13	136	6		1200	1541				
20B	35	151	13	136	6		1200	1541				
21	35	151	13	136			1200	1535				
22A	35	151	13	136			1200	1535				
22B		151	13	136			1200	1500				
23B		184	67	212			1200	1663				
23C		184	67				1200	1451				
24		190	78				1200	1468				
25		193	83			63	1200	1539				
26A		193	83			63	1200	1539				
26B							300	300				
F	actors for Distri	buting Capital a	and Minimum (	OMP&R Costs o	f East Branch I	Enlargement Fa	cilities (flow rat	ios)				
						San	-					
	Antelope					Bernardino	Metropolitan					
	Valley-	Coachella				Valley	Water					
	East Kern	Valley	Desert	Mojave	Palmdale	Municipal	District of					
Reach	Water	Water	Water	Water	Water	Water	Southern					
Number	Agency	District	Agency	Agency	District	District	California	Total				
18A	0.00000000	0.10026560	0.00863214	0.09030544	0.00398406	0.00000000	0.79681276	1.00000000				
19	0.00000000	0.10026560	0.00863214	0.09030544	0.00398406	0.00000000	0.79681276	1.00000000				
20A	0.02271252	0.09798832	0.00843608	0.08825438	0.00389358	0.00000000	0.77871512	1.00000000				
20B	0.02271252	0.09798832	0.00843608	0.08825438	0.00389358	0.00000000	0.77871512	1.00000000				
21	0.02280130	0.09837134	0.00846906	0.08859935	0.00000000	0.00000000	0.78175895	1.00000000				
22A	0.02280130	0.09837134	0.00846906	0.08859935	0.00000000	0.00000000	0.78175895	1.00000000				
22B	0.00000000	0.10066667	0.00866667	0.09066667	0.00000000	0.00000000	0.79999999	1.00000000				
23B	0.00000000	0.11064342	0.04028863	0.12748046	0.00000000	0.00000000	0.72158749	1.00000000				
23C	0.00000000	0.12680910	0.04617505	0.00000000	0.00000000	0.00000000	0.82701585	1.00000000				
24	0.00000000	0.12942779	0.05313351	0.00000000	0.00000000	0.00000000	0.81743870	1.00000000				
25	0.00000000	0.12540611	0.05393112	0.00000000	0.00000000	0.04093567	0.77972710	1.00000000				
26A	0.00000000	0.12540611	0.05393112	0.00000000	0.00000000	0.04093567	0.77972710	1.00000000				
26B	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	1.00000000	1.00000000				
_05	0.0000000	0.0000000	3.55555555	5.5555555	3.55555555	3.55555555	1.0000000					

Tables B-1 through B-31 follow

TABLE B-1
Factors for Distributing Reach Capital Costs Among Contractors

		North E	Bay Area		South	Bay Area		Sheet 1 o
Reach No.	Reach Description	Napa County FC&WCD	Solano County Water Agency	Alameda County FC&WCD, Zone 7	Alameda County Water District	Santa Clara Valley Water District	Future Contractor	Total
	North Bay Aqueduct							
1 2 3A 3B	Barker Slough thru Fairfield/Vacaville Turnout Fairfield/Vacaville Turnout to Cordelia Forebay Cordelia Forebay thru Benicia and Vallejo Turnouts Cordelia Forebay thru Napa Turnout Reservoir	0.29667896 0.38414552 1.00000000	0.70332104 0.61585448 1.00000000					1.00000 1.00000 1.00000
	South Bay Aqueduct							
1 2 4 5 6	Bethany Reservoir thru Altamont Turnout Altamont Turnout thru Patterson Reservoir Patterson Reservoir to Del Valle Junction Del Valle Junction thru Lake Del Valle Del Valle Junction thru South Livermore Turnout			0.22599612 0.22599658 0.19504795 0.14436367 0.14599918	0.20663021 0.20663059 0.21450017 0.12972254 0.21144710	0.49237700 0.49237783 0.51113249 0.33715573 0.50574745	0.07499667 0.07499500 0.07931939 0.38875806 0.13680627	1.00000 1.00000 1.00000 1.00000 1.00000
7 8 9	South Livermore Turnout thru Vallecitos Turnout Vallecitos Turnout thru Alameda-Bayside Turnout Alameda-Bayside Turnout thru Santa Clara Terminal Facilities				0.25176680 0.27934645	0.60218448 0.72065355 1.00000000	0.14604872	1.00000 1.00000 1.00000
	California Aqueduct							
1	Delta thru Bethany Reservoir			0.00954762	0.00872940	0.02080173	0.00342512	
		Central C	oastal Area		Sout	hern California		
Reach No.	Reach Description	San Luis Obispo County FC&WCD	Santa Barbara County FC&WCD	Antelope Valley-East Kern Water Agency	Castaic Lake Water Agency	Coachella Valley Water District	Crestline- Lake Arrowhead Water Agency	Deser Water Agenc
	California Aqueduct							
1 2A 2B 3 4	Delta thru Bethany Reservoir Bethany Reservoir to Orestimba Creek Orestimba Creek to O'Neill Forebay O'Neill Forebay to Dos Amigos Pumping Plant Dos Amigos Pumping Plant to Panoche Creek	0.00533025 0.00557228 0.00557840 0.00557734 0.00557622	0.00983363 0.01028016 0.01029147 0.01028951 0.01028745	0.02938207 0.03071619 0.03075002 0.03074419 0.03073807	0.01285705 0.01343075 0.01345224 0.01345168 0.01345106	0.00527887 0.00551621 0.00552384 0.00552326 0.00552264	0.00133499 0.00139502 0.00139695 0.00139679 0.00139664	0.00870 0.00909 0.00910 0.00910 0.00910
5 6 7 8C 8D	Panoche Creek to Five Points Five Points to Arroyo Pasajero Arroyo Pasajero to Kettleman City Ketyon Pasajero to Kettleman City Ketyon Milham Avenue Milham Avenue thru Avenal Gap	0.00557482 0.00557272 0.00557204 0.00557118 0.00568627	0.01028490 0.01028102 0.01027978 0.01027820 0.01049050	0.03073043 0.03071887 0.03071517 0.03071049 0.03134490	0.01345032 0.01344919 0.01344883 0.01344837 0.01373228	0.00552186 0.00552069 0.00552031 0.00551985 0.00563530	0.00139646 0.00139617 0.00139607 0.00139596 0.00142517	0.00910 0.00910 0.00910 0.00910 0.00929
9 10A 11B 12D 12E	Avenal Gap thru Twisselman Road Twisselman Road thru Lost Hills Lost Hills to 7th Standard Road 7th Standard Road thru Elik Hills Road Elk Hills Road thru Tupman Road			0.03414472 0.03468912 0.03808541 0.04002533 0.04007875	0.01351541 0.01373087 0.01507512 0.01584295 0.01586409	0.00614439 0.00624436 0.00686598 0.00722191 0.00723264	0.00155392 0.00157919 0.00173639 0.00182641 0.00182914	0.01013 0.01029 0.01132 0.01191 0.01192
13B 14A 14B 14C 15A	Tupman Road to Buena Vista Pumping Plant Buena Vista Pumping Plant thru Santiago Creek Santiago Creek thru Old River Road Old River Road to Wheeler Ridge Pumping Plant Wheeler Ridge Pumping Plant to Chrisman Pumping Plant			0.04345750 0.04561791 0.04643753 0.04784143 0.04863212	0.01720142 0.01805651 0.01838089 0.01893656 0.01924948	0.00785053 0.00824777 0.00839964 0.00865908 0.00880567	0.00198539 0.00208584 0.00212425 0.00218985 0.00222693	0.01294 0.01360 0.01385 0.01428 0.01452
16A 17E 17F 18A 19	Chrisman Pumping Plant to Edmonston Pumping Plant Edmonston Pumping Plant to Porter Tunnel Porter Tunnel to Junction, West Branch, Calif. Aqueduct Junction, West Branch, Calif. Aqueduct thru Alamo Pwp. Alamo Powerplant to Fairmont			0.05044278 0.05279632 0.05290761 0.13072175 0.13071959	0.01996611 0.02089760 0.02094165	0.00914016 0.00957592 0.00959622 0.02369848 0.02369936	0.00231154 0.00242174 0.00242687 0.00599335 0.00599355	0.01507 0.01579 0.01582 0.03908 0.03908
19C 20A 20B 21 22A	Buttes Junction thru Buttes Reservoir Fairmont thru 70th Street West 70th Street West to Palmdale Palmdale to Littlerock Creek Littlerock Creek to Pearblossom Pumping Plant			1.0000000 0.06752671 0.02242496 0.02284232 0.01163919		0.02542708 0.02665832 0.02716328 0.02754684	0.00643049 0.00674179 0.00686948 0.00696644	0.04193 0.04396 0.04479 0.04542
22B 23 24 25 26A	Pearblossom Pumping Plant to West Fork Mojave River West Fork Mojave River to Silverwood Lake Cedar Springs Dam and Silverwood Lake Silverwood Lake to South Portal San Bernardino Tunnel South Portal, San Bernardino Tunnel thru Devil Canyon Pwp.					0.02787140 0.00324449 0.01024605	0.00704849 0.00818122 0.01251569	0.04596 0.00535 0.01690
28G 28H 28J	Devil Canyon Powerplant to Barton Road Barton Road to Lake Perris Perris Dam and Lake Perris							
29A 29F 29G 29H 29J 30	Junction, West Branch, Calif. Aqueduct thru Oso P. P. Oso Pumping Plant thru Quail Embankment Quail Embankment thru Warne Powerplant Pyramid Dam and Lake Pyramid Lake thru Castaic Powerplant Castaic Dam and Lake				0.03544337 0.03544339 0.03544339 0.02817144 0.03544338 0.02927284			
24 4	Accord Con to Decillo Don December Blant	0.40500004	0.40400500		0.07004700			

0.10560301 0.35150791 0.24688802 0.18022521 0.19482503 0.64849209 0.75311198 0.81977479 0.07364766

31A 33A 34 35 Avenal Gap to Devil's Den Pumping Plant Devil's Den Pumping Plant thru San Luis Obispo Powerplant San Luis Obispo Powerplant to Arroyo Grande Arroyo Grande thru Santa Maria Terminus

Sheet 2 of 2

				San Joaquin	Valley Area			
	Dudley	Empire West Side	Future Contractor	Kern County I	Water Agency			Tulare Lake Basin
Reach No.	Ridge Water District	Irrigation District	San Joaquin Valley	Municipal and Industrial	Agricultural	County of Kings	Oak Flat Water District	Water Storage District
	California Aqued	uct						
1 2A 2B 3 4	0.01707833 0.01781099 0.01785906 0.01786406 0.01786931	0.00088681 0.00092486 0.00092735 0.00092760 0.00092788	0.00254702 0.00266267 0.00266560 0.00266508 0.00266454	0.02741672 0.02864165 0.02868647 0.02868495 0.02868334	0.29913759 0.31198180 0.31281652 0.31290175 0.31299134	0.00090698 0.00094750 0.00094899 0.00094895 0.00094889	0.00167129 0.00174295	0.03505104 0.03655469 0.03665341 0.03666366 0.03667444
5 6 7 8C 8D	0.01787586 0.01788577 0.01788895 0.01789297 0.01828852	0.00092822 0.00092874 0.00092891 0.00092913	0.00266387 0.00266287 0.00266253 0.00266212 0.00271710	0.02868133 0.02867830 0.02867733 0.02867609 0.02928055	0.31310323 0.31327253 0.31332681 0.31339533 0.32031663	0.00094882 0.00094871 0.00094867 0.00094862		0.03668790 0.03670826 0.03671479 0.03672304 0.01820929
9 10A 11B 12D 12E				0.03194488 0.03247122 0.03573781 0.03761099 0.03767051	0.32369508 0.31285407 0.24527887 0.20665553 0.20556447			
13B 14A 14B 14C 15A				0.01447877 0.00615445 0.00626952 0.00646578 0.00657685	0.16479038 0.13216944 0.11649662 0.08966572 0.07454474			
16A 17E				0.00682980 0.00210582	0.03994337			
31A			0.05046240		0.48227699			

			So	outhern Californi	a Area (continu	ed)			
Reach No.	Littlerock Creek Irrigation District	Mojave Water Agency	Palmdale Water District	San Bernardino Municipal Water District	San Gabriel Valley Municipal Water District	San Gorgonio Pass Water Agency	Metropolitan Water District of Southern California	Ventura County Flood Control District	Total
1 2A 2B 3 4	0.00049153 0.00051386 0.00051442 0.00051433 0.00051423	0.01836512 0.01918279 0.01921470 0.01921422 0.01921374	0.00368971 0.00385724 0.00386150 0.00386078 0.00386000	0.02360899 0.02467056 0.02470464 0.02470201 0.02469924	0.00649809 0.00679129 0.00679999 0.00679906 0.00679810	0.00398058 0.00415957 0.00416532 0.00416487 0.00416441	0.43915188 0.45906308 0.45958771 0.45950634 0.45942080	0.00429168 0.00448655 0.00449148 0.00449062 0.00448973	1.00000000 1.00000000 1.00000000 1.00000000
5 6 7 8C 8D	0.00051412 0.00051391 0.00051385 0.00051377 0.00052438	0.01921312 0.01921219 0.01921190 0.01921153 0.01961820	0.00385905 0.00385760 0.00385714 0.00385656 0.00393624	0.02469577 0.02469052 0.02468884 0.02468673 0.02520299	0.00679687 0.00679502 0.00679444 0.00679369 0.00693516	0.00416382 0.00416294 0.00416265 0.00416228 0.00424934	0.45931398 0.45915234 0.45910051 0.45903510 0.46853513	0.00448861 0.00448692 0.00448639 0.00448569 0.00457836	1.00000000 1.00000000 1.00000000 1.00000000
9 10A 11B 12D 12E	0.00057121 0.00058033 0.00063716 0.00066963 0.00067054	0.01889351 0.01919374 0.02106780 0.02213780 0.02216683	0.00428784 0.00435622 0.00478274 0.00502638 0.00503311	0.02747971 0.02792671 0.03070653 0.03229817 0.03234616	0.00755914 0.00768123 0.00844135 0.00887619 0.00888890	0.00463319 0.00470856 0.00517725 0.00544560 0.00545369	0.51045644 0.51861945 0.56952146 0.59860668 0.59941925	0.00498729 0.00506680 0.00556284 0.00584616 0.00585395	1.00000000 1.00000000 1.00000000 1.00000000
13B 14A 14B 14C 15A	0.00072707 0.00076323 0.00077696 0.00080045 0.00081368	0.02403148 0.02522268 0.02567401 0.02644746 0.02688283	0.00545744 0.00572877 0.00583170 0.00600801 0.00610733	0.03510928 0.03688570 0.03756483 0.03872500 0.03938043	0.00964467 0.01012962 0.01031452 0.01063070 0.01080910	0.00591955 0.00621906 0.00633356 0.00652916 0.00663965	0.65005211 0.68245395 0.69476073 0.71583262 0.72770582	0.00634744 0.00666296 0.00678266 0.00698770 0.00710318	1.00000000 1.00000000 1.00000000 1.00000000
16A 17E 17F 18A 19	0.00084397 0.00088335 0.00088521 0.00218712 0.00218707	0.02788041 0.02917660 0.02923805 0.06156972 0.06155918	0.00633472 0.00663032 0.00664430 0.01641638 0.01641611	0.04087618 0.04282474 0.04291551 0.10598288 0.10598653	0.01121678 0.01174746 0.01177231 0.02907755 0.02907802	0.00689182 0.00722034 0.00723565 0.01786894 0.01786955	0.75488089 0.79021597 0.79188307 0.56740060 0.56740642	0.00736762 0.00771134 0.00772759	1.00000000 1.00000000 1.00000000 1.00000000
19C 20A 20B 21 22A	0.00234578 0.00245917 0.00250528	0.06596653 0.06913837 0.07038911 0.07135772	0.01760756 0.01845865	0.11371285 0.11921890 0.12147708 0.12319236	0.03119440 0.03270395 0.03332098 0.03379041	0.01917225 0.02010062 0.02048134 0.02077051	0.60868244 0.63813092 0.65015400 0.65930679		1.00000000 1.00000000 1.00000000 1.00000000
22B 23 24 25 26A		0.07219586		0.12464379 0.14467451 0.22243002 0.14947726 0.14947726	0.03418846 0.03969010 0.04339444 0.03997502 0.03997502	0.02101518 0.02439237 0.02843498 0.02520426 0.02520426	0.66707180 0.77446614 0.66607404 0.78534346 0.78534346		1.00000000 1.00000000 1.00000000 1.00000000
28G 28H 28J				0.05126137			0.94873863 1.00000000 1.00000000		1.00000000 1.00000000 1.00000000
29A 29F 29G 29H 29J 30							0.95147783 0.95147785 0.95147785 0.96278381 0.95147787 0.96212388	0.01307880 0.01307876 0.01307876 0.00904475 0.01307875 0.00860328	1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.00000000
31A 33A 34 35		0.09318491							1.00000000 1.00000000 1.00000000 1.00000000

TABLE B-2
Factors for Distributing Reach Minimum OMP&R Costs Among Contractors
Sheet 1 of 2

North Bay Area South Bay Area Alameda Alameda Santa Clara Napa County County County Valley Reach County Water FC&WCD, Water Water Future No. Reach Description FC&WCD Agency Zone 7 District District Contractor Total North Bay Aqueduct Barker Slough thru Fairfield/Vacaville Turnout Fairfield/Vacaville Turnout to Cordelia Forebay 0.27960541 0.72039459 1 00000000 0.38414552 0.61585448 1.00000000 Cordelia Forebay thru Benicia and Vallejo Turnouts Cordelia Forebay thru Napa Turnout Reservoir 1.00000000 1.00000000 1.00000000 1.00000000 South Bay Aqueduct 0.22599612 0.22599658 Bethany Reservoir thru Altamont Turnout 0.20663021 0.49237700 0.07499667 Altamont Turnout thru Patterson Reservoir Patterson Reservoir to Del Valle Junction Del Valle Junction thru Lake Del Valle 0.20663059 0.21450017 0.12972254 0.49237783 0.07499500 0.07931939 0.19504795 0.14436367 0.51113249 0.33715573 0.38875806 5 6 Del Valle Junction thru South Livermore Turnout 0.14599918 0.21144710 0.50574745 0.13680627 1.00000000 0.14604872 7 South Livermore Turnout thru Vallecitos Turnout 0.25176680 0.60218448 1.00000000 Vallecitos Turnout thru Alameda-Bayside Turnout
Alameda-Bayside Turnout thru Santa Clara Terminal Facilities 0.27934645 0.72065355 1.00000000 California Aqueduct Delta thru Bethany Reservoir 0.00954762 0.00872940 0.02080173 0.00342512 N/A

	Delta tiru Detriarry Neservon			0.00334702	0.00072340	0.02000173		
		Central C	oastal Area		Souti	hern Californi		
Reacl No.	n Reach Description	San Luis Obispo County FC&WCD	Santa Barbara County FC&WCD	Antelope Valley- East Kern Water Agency	Castaic Lake Water Agency	Coachella Valley Water District	Crestline- Lake Arrowhead Water Agency	Desert Water Agency
	California Aqueduct			-1				
1 2A 2B 3 4	Delta thru Bethany Reservoir Bethany Reservoir to Orestimba Creek Orestimba Creek to O'Neill Forebay O'Neill Forebay to Dos Amigos Pumping Plant Dos Amigos Pumping Plant to Panoche Creek	0.00533025 0.00557228 0.00557840 0.00557734 0.00557622	0.00983363 0.01028016 0.01029147 0.01028951 0.01028745	0.02938207 0.03071619 0.03075002 0.03074419 0.03073807	0.01285705 0.01343075 0.01345224 0.01345168 0.01345106	0.00527887 0.00551621 0.00552384 0.00552326 0.00552264	0.00133499 0.00139502 0.00139695 0.00139679 0.00139664	0.00870591 0.00909734 0.00910992 0.00910895 0.00910793
5 6 7 8C 8D	Panoche Creek to Five Points Five Points to Arroyo Pasajero Arroyo Pasajero to Kettleman City Kettleman City thru Milham Avenue Milham Avenue thru Avenal Gap	0.00557482 0.00557272 0.00557204 0.00551611 0.00562839	0.01028490 0.01028102 0.01027978 0.01017659 0.01038372	0.03073043 0.03071887 0.03071517 0.03040675 0.03102570	0.01345032 0.01344919 0.01344883 0.01329874 0.01357503	0.00552186 0.00552069 0.00552031 0.00546140 0.00557386	0.00139646 0.00139617 0.00139607 0.00138118 0.00140963	0.00910664 0.00910472 0.00910409 0.00900691 0.00919238
9 10A 11B 12D 12E	Avenal Gap thru Twisselman Road Twisselman Road thru Lost Hills Lost Hills to 7th Standard Road 7th Standard Road thru Elk Hills Road Elk Hills Road thru Tupman Road			0.03375440 0.03428254 0.03757107 0.03944168 0.03949193	0.01336095 0.01356998 0.01487158 0.01561199 0.01563187	0.00606925 0.00616607 0.00676693 0.00710950 0.00711958	0.00153492 0.00155940 0.00171135 0.00179798 0.00180055	0.01000937 0.01016904 0.01115995 0.01172489 0.01174153
13B 14A 14B 14C 15A	Tupman Road to Buena Vista Pumping Plant Buena Vista Pumping Plant thru Santiago Creek Santiago Creek thru Old River Road Old River Road to Wheeler Ridge Pumping Plant Wheeler Ridge Pumping Plant to Chrisman Pumping Plant			0.04274545 0.04481395 0.04559449 0.04693014 0.04768029	0.01691964 0.01773837 0.01804729 0.01857594 0.01887282	0.00771332 0.00809281 0.00823710 0.00848336 0.00862210	0.00195069 0.00204666 0.00208315 0.00214542 0.00218051	0.01272071 0.01334657 0.01358456 0.01399071 0.01421948
16A 17E 17F 18A 19	Chrisman Pumping Plant to Edmonston Pumping Plant Edmonston Pumping Plant to Porter Tunnel Porter Tunnel to Junction, West Branch, Calif. Aqueduct Junction, West Branch, Calif. Aqueduct thru Alamo Pwp. Alamo Powerplant to Fairmont			0.04939637 0.05161891 0.05172490 0.13072175 0.13071959	0.01955202 0.02043167 0.02047362	0.00893834 0.00934878 0.00936806 0.02369848 0.02369936	0.00226050 0.00236430 0.00236918 0.00599335 0.00599355	0.01474104 0.01541792 0.01544971 0.03908323 0.03908462
19C 20A 20B 21 22A	Buttes Junction thru Buttes Reservoir Fairmont thru 70th Street West 70th Street West to Palmdale Palmdale to Littlerock Creek Littlerock Creek to Pearblossom Pumping Plant			1.00000000 0.06752671 0.02242496 0.02284232 0.01163919		0.02542708 0.02665832 0.02716328 0.02754684	0.00643049 0.00674179 0.00686948 0.00696644	0.04193391 0.04396435 0.04479713 0.04542974
22B 23 24 25 26A	Pearblossom Pumping Plant to West Fork Mojave River West Fork Mojave River to Silverwood Lake Cedar Springs Dam and Silverwood Lake Silverwood Lake to South Portal San Bernardino Tunnel South Portal, San Bernardino Tunnel thru Devil Canyon Pwp.					0.02787140 0.00324449 0.01024605	0.00704849 0.00818122 0.01251569	0.04596502 0.00535117 0.01690478
28G 28H 28J	Devil Canyon Powerplant to Barton Road Barton Road to Lake Perris Perris Dam and Lake Perris							
29A 29F 29G 29H 29J 30	Junction, West Branch, Calif. Aqueduct thru Oso P. P. Oso Pumping Plant thru Quail Embankment Quail Embankment thru Warne Powerplant Pyramid Dam and Lake Pyramid Lake thru Castaic Powerplant Castaic Dam and Lake			0.00302472 0.00302551	0.03533617 0.03533615 0.03544339 0.02817144 0.03544338 0.02927284			
31A 33A 34 35	Avenal Gap to Devil's Den Pumping Plant Devil's Den Pumping Plant thru San Luis Obispo Powerplant San Luis Obispo Powerplant to Arroyo Grande Arroyo Grande thru Santa Maria Terminus	0.10560301 0.35150791 0.24688802 0.18022521	0.19482503 0.64849209 0.75311198 0.81977479		0.07364766			

TABLE B-2
Factors for Distributing Reach Minimum OMP&R Costs Among Contractors
Sheet 2 of 2

	San Joaquin Valley Area										
	Dudley	Empire West Side	Future	Kern County W	/ater Agency			Tulare Lake			
Reach No.	Ridge Water District	Irrigation District	Contractor San Joaquin Valley	Municipal and Industrial	Agricultural	County of Kings	Oak Flat Water District	Basin Water Storage District			
	California Aqueduo	:t									
1 2A 2B 3 4	0.01707833 0.01781099 0.01785906 0.01786406 0.01786931	0.00088681 0.00092486 0.00092735 0.00092760 0.00092788	0.00254702 0.00266267 0.00266560 0.00266508 0.00266454	0.02741672 0.02864165 0.02868647 0.02868495 0.02868334	0.29913759 0.31198180 0.31281652 0.31290175 0.31299134	0.00090698 0.00094750 0.00094899 0.00094895 0.00094889	0.00167129 0.00174295	0.03505104 0.03655469 0.03665341 0.03666366 0.03667444			
5 6 7 8C 8D	0.01787586 0.01788577 0.01788895 0.01764545 0.01802840	0.00092822 0.00092874 0.00092891 0.00091627	0.00266387 0.00266287 0.00266253 0.00263582 0.00268946	0.02868133 0.02867830 0.02867733 0.02835960 0.02894794	0.31310323 0.31327253 0.31332681 0.30907838 0.31577976	0.00094882 0.00094871 0.00094867 0.00093815		0.03668790 0.03670826 0.03671479 0.03621497 0.01795029			
9 10A 11B 12D 12E				0.03153801 0.03204726 0.03520126 0.03700201 0.03705795	0.31855629 0.30776618 0.24071732 0.20252379 0.20143621						
13B 14A 14B 14C 15A				0.01421572 0.00603433 0.00614351 0.00632952 0.00643449	0.16110676 0.12900326 0.11362601 0.08735395 0.07257285						
16A 17E				0.00667329 0.00205401	0.03882784						
31A			0.05046240		0.48227699						

	Southern California Area (continued)										
Reach No	Littlerock Creek Irrigation District	Mojave Water Agency	Palmdale Water District	San Bernardino Municipal Water District	San Gabriel Valley Municipal Water Distraict	San Gorgonio Pass Water Agency	Metropolitan Water District of Southern California	Ventura County Flood Control District	Total		
1 2A 2B 3 4	0.00049153 0.00051386 0.00051442 0.00051433 0.00051423	0.01836512 0.01918279 0.01921470 0.01921422 0.01921374	0.00368971 0.00385724 0.00386150 0.00386078 0.00386000	0.02360899 0.02467056 0.02470464 0.02470201 0.02469924	0.00649809 0.00679129 0.00679999 0.00679906 0.00679810	0.00398058 0.00415957 0.00416532 0.00416487 0.00416441	0.43915188 0.45906308 0.45958771 0.45950634 0.45942080	0.00429168 0.00448655 0.00449148 0.00449062 0.00448973	1.0000000 1.0000000 1.0000000 1.0000000 1.0000000		
5 6 7 8C 8D	0.00051412 0.00051391 0.00051385 0.00050869 0.00051904	0.01921312 0.01921219 0.01921190 0.01899480 0.01939044	0.00385905 0.00385760 0.00385714 0.00381840 0.00389614	0.02469577 0.02469052 0.02468884 0.02442542 0.02492838	0.00679687 0.00679502 0.00679444 0.00672346 0.00686135	0.00416382 0.00416294 0.00416265 0.00411823 0.00420304	0.45931398 0.45915234 0.45910051 0.46593334 0.47548530	0.00448861 0.00448692 0.00448639 0.00444134 0.00453175	1.00000000 1.00000000 1.00000000 1.00000000		
9 10A 11B 12D 12E	0.00056468 0.00057352 0.00062855 0.00065986 0.00066071	0.01867997 0.01897132 0.02078643 0.02181854 0.02184585	0.00423881 0.00430515 0.00471813 0.00495307 0.00495940	0.02714383 0.02757677 0.03026373 0.03179562 0.03184074	0.00746888 0.00758720 0.00832237 0.00874117 0.00875312	0.00457656 0.00464957 0.00510260 0.00536088 0.00536849	0.51757379 0.52576857 0.57669100 0.60569809 0.60652380	0.00493029 0.00500743 0.00548773 0.00576093 0.00576827	1.00000000 1.00000000 1.00000000 1.00000000		
13B 14A 14B 14C 15A	0.00071515 0.00074977 0.00076285 0.00078520 0.00079775	0.02364201 0.02478295 0.02521293 0.02594906 0.02636228	0.00536799 0.00562778 0.00572580 0.00589354 0.00598777	0.03449593 0.03619298 0.03683828 0.03793948 0.03855984	0.00947990 0.00994355 0.01011937 0.01041973 0.01058872	0.00581615 0.00610228 0.00621107 0.00639673 0.00650130	0.65686711 0.68897918 0.70115403 0.72195260 0.73365561	0.00624347 0.00654556 0.00665956 0.00685462 0.00696419	1.0000000 1.0000000 1.0000000 1.0000000 1.0000000		
16A 17E 17F 18A 19	0.00082646 0.00086364 0.00086541 0.00218712 0.00218707	0.02730813 0.02853271 0.02859126 0.06156972 0.06155918	0.00620328 0.00648242 0.00649573 0.01641638 0.01641611	0.03997401 0.04180936 0.04189557 0.10598288 0.10598653	0.01097450 0.01147480 0.01149842 0.02907755 0.02907802	0.00673972 0.00704916 0.00706370 0.01786894 0.01786955	0.76036968 0.79501291 0.79664955 0.56740060 0.56740642	0.00721482 0.00753941 0.00755489	1.0000000 1.0000000 1.0000000 1.0000000 1.0000000		
19C 20A 20B 21 22A	0.00234578 0.00245917 0.00250528	0.06596653 0.06913837 0.07038911 0.07135772	0.01760756 0.01845865	0.11371285 0.11921890 0.12147708 0.12319236	0.03119440 0.03270395 0.03332098 0.03379041	0.01917225 0.02010062 0.02048134 0.02077051	0.60868244 0.63813092 0.65015400 0.65930679		1.00000000 1.00000000 1.00000000 1.00000000		
22B 23 24 25 26A		0.07219586		0.12464379 0.14467451 0.22243002 0.11825184 0.14947726	0.03418846 0.03969010 0.04339444 0.03722720 0.03997502	0.02101518 0.02439237 0.02843498 0.01993915 0.02520426	0.66707180 0.77446614 0.66607404 0.82458181 0.78534346		1.00000000 1.00000000 1.00000000 1.00000000		
28G 28H 28J				0.05126137			0.94873863 1.00000000 1.00000000		1.00000000 1.00000000 1.00000000		
29A 29F 29G 29H 29J 30							0.94859988 0.94859915 0.95147785 0.96278381 0.95147787 0.96212388	0.01303923 0.01303919 0.01307876 0.00904475 0.01307875 0.00860328	1.00000000 1.00000000 1.00000000 1.00000000		
31A 33A 34 35		0.09318491							1.00000000 1.00000000 1.00000000 1.00000000		

#### TABLE B-3

# Power Costs and Credits and Annual Replacement Deposits for Each **Aqueduct Pumping and Power Recovery Plant**

(Dollars)

Sheet 1 of 2

	No	orth Bay Aquedu	ıct	South Bay Aqueduct			California	Aqueduct		
	Reach 1	Reach 3A	Reach 3B	Reach 1 (b	Reach 1	Reach 4	Reach 14A	Reach 15A	Reach 16A	Reach 17E
Calendar Year		Cordelia Pumping Plant Solano (2)	Cordelia Pumping Plant Napa (a (3)	South Bay & Del Valle Pumping Plants (4)	Banks Pumping Plant (5)	Dos Amigos Pumping Plant (6)	Buena Vista Pumping Plant (7)	Teerink Pumping Plant (8)	Chrisman Pumping Plant (9)	Edmonston Pumping Plant (10)
1961 1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0	0 38,130 58,871 75,239 146,297	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1966 1967 1968 1969 1970	0 0 0 0	0 0 0 0	0 7,128 8,557 13,666	198,643 229,629 342,761 279,751 448,383	0 26,982 1,324,777 855,304 368,508	0 0 239,505 143,403 217,820	0 0 0 0 2,940	0 0 0 0	0 0 0 0	0 0 0 0
1971 1972 1973 1974 1975	0 0 0 0	0 0 0 0	10,626 14,430 14,453 17,508 14,801	422,057 623,564 485,534 510,873 382,106	597,946 1,110,833 918,234 997,269 1,353,916	229,306 575,291 493,776 560,461 561,089	156,540 348,668 511,904 556,968 650,781	23,021 187,825 514,487 595,585 707,038	18,577 385,935 883,725 1,048,196 1,394,918	29,067 1,263,087 3,139,297 3,700,573 4,853,538
1976 1977 1978 1979 1980	0 0 0 0	0 0 0 0	20,867 22,640 21,670 16,240 19,936	589,007 541,803 568,381 622,517 523,445	916,728 653,304 3,871,011 3,431,278 2,267,876	596,426 191,906 723,989 1,019,021 1,097,085	701,061 170,689 1,009,556 848,639 1,007,198	687,677 173,496 968,744 830,839 997,877	1,414,902 337,890 1,782,668 1,666,505 2,018,282	4,917,776 1,130,422 6,281,786 5,741,609 6,671,880
1981 1982 1983 1984 1985	0 0 0 0	0 0 0 0	23,859 12,080 2,333 4,855 10,211	630,690 485,211 118,004 282,391 454,902	2,565,618 3,730,736 1,370,883 1,837,298 3,270,250	1,987,540 1,472,536 412,326 950,410 1,701,149	1,395,708 1,348,397 431,761 802,982 1,563,085	1,393,914 1,400,673 421,646 748,522 1,597,217	3,010,466 2,816,714 764,617 1,415,575 3,242,424	9,893,978 9,849,410 2,309,606 4,389,477 10,831,045
1986	0	0	15,455	845,695	7,536,972	2,718,092	2,572,453	2,630,650	5,461,033	18,512,562
1987	0	0	27,222	912,825	5,038,287	2,599,171	2,301,538	2,334,814	4,617,704	15,159,364
1988	18,182	37,933	23,971	933,930	5,953,824	2,693,239	2,652,420	2,686,625	5,345,908	17,592,345
1989	25,914	94,281	6,642	1,113,019	11,294,741	4,125,867	4,089,765	4,163,097	8,738,419	29,114,455
1990	59,003	138,531	43,041	1,891,636	9,727,977	4,749,282	5,988,764	6,327,769	14,252,908	50,137,561
1991	11,124	15,229	2,356	415,163	3,467,838	540,093	1,169,681	1,374,112	3,214,848	11,478,664
1992	15,502	26,946	9,466	308,584	2,895,272	1,223,844	1,314,839	1,387,435	2,789,880	9,282,870
1993	(6,434)	54,691	(5,359)	(161,652)	4,117,320	448,456	(74,918)	(78,442)	(551,522)	(2,210,147)
1994	64,570	129,531	28,924	835,094	4,366,751	2,568,619	2,564,316	2,645,452	5,588,542	18,877,603
1995	21,071	57,615	11,570	239,680	4,588,771	1,571,625	727,370	532,526	940,234	2,886,027
1996	58,054	78,650	22,992	587,396	9,068,946	3,983,708	2,502,047	2,275,868	4,850,235	17,009,469
1997	116,967	76,381	75,495	1,574,749	11,700,558	5,158,381	5,202,750	5,742,804	12,077,610	42,355,650
1998	143,551	87,533	84,375	1,919,788	12,640,254	5,605,244	5,775,664	6,404,620	13,498,374	47,382,701
1999	124,036	81,659	79,806	2,090,341	11,255,741	5,442,377	5,980,177	6,692,336	14,151,022	49,804,544
2000	142,334	91,349	94,049	2,355,000	14,463,163	6,972,353	8,257,999	9,398,983	19,973,960	70,509,952
2001	134,590	84,393	90,341	2,187,883	16,288,195	6,224,167	7,216,729	8,176,372	17,352,517	61,206,754
2002	173,628	117,237	124,551	2,811,043	20,854,277	9,103,421	11,186,154	13,074,395	27,910,903	98,747,745
2003	175,812	120,190	128,614	2,781,100	22,422,497	9,062,938	11,167,160	13,057,285	27,878,200	98,640,836
2004	187,911	129,665	139,915	2,905,272	20,947,444	9,328,570	11,419,119	13,339,496	28,471,298	100,718,114
2005	172,491	115,945	131,668	2,630,192	19,216,570	8,553,664	10,530,580	12,311,332	26,284,490	92,999,039
2006	176,852	119,138	137,438	2,669,405	21,689,753	8,712,648	10,742,868	12,562,336	26,822,546	94,907,481
2007	176,241	117,238	139,856	2,626,842	18,756,048	8,458,008	10,366,664	12,112,108	25,853,334	91,460,630
2008	182,216	119,412	148,156	2,675,555	20,867,108	8,690,184	10,692,163	12,499,291	26,685,058	94,414,564
2009	184,660	119,581	153,263	2,679,324	20,313,339	8,729,167	10,755,273	12,575,510	26,849,439	95,000,489
2010	186,836	119,489	158,269	2,677,274	19,801,633	8,672,532	10,658,340	12,457,655	26,594,614	94,091,078
2011	189,670	119,610	164,406	2,679,972	20,222,258	8,712,547	10,724,673	12,538,017	26,768,235	94,710,154
2012	192,464	119,946	170,077	2,687,524	20,337,240	8,740,163	10,760,400	12,580,083	26,858,248	95,029,259
2013	207,952	127,750	187,666	2,862,379	22,446,206	9,345,616	11,525,411	13,477,736	28,777,255	101,824,394
2014	225,501	136,561	207,881	3,059,790	21,671,036	9,765,984	11,921,703	13,921,227	29,708,828	105,086,745
2015	231,756	138,494	218,122	3,103,102	23,630,752	10,140,516	12,510,606	14,630,693	31,239,614	110,538,509
2016	233,625	138,916	224,260	3,092,299	23,948,594	10,021,772	12,318,299	14,398,255	30,737,606	108,749,669
2017	237,008	139,310	231,887	3,101,063	23,476,988	10,083,131	12,412,471	14,511,379	30,981,373	109,617,127
2018	239,371	139,058	238,862	3,095,452	23,238,657	10,019,597	12,308,695	14,385,904	30,710,413	108,651,471
2019	242,024	139,022	246,418	3,094,644	23,151,769	10,078,065	12,415,049	14,515,704	30,991,854	109,656,509
2020	239,455	135,978	248,622	3,026,887	23,264,684	9,840,506	12,112,451	14,160,397	30,232,008	106,965,494
2021	239,359	135,734	249,393	3,021,479	23,105,659	9,794,998	12,041,158	14,074,583	30,046,802	106,306,322
2022	239,064	135,567	249,086	3,017,754	21,237,372	9,790,220	12,040,065	14,073,963	30,046,126	106,304,698
2023	240,838	136,574	250,935	3,040,158	23,854,559	9,904,256	12,202,317	14,267,302	30,461,663	107,781,228
2024	238,939	135,497	248,956	3,016,187	21,934,726	9,774,495	12,014,331	14,042,889	29,978,913	106,065,404
2025	240,378	136,313	250,456	3,034,351	23,722,395	9,869,599	12,150,992	14,205,949	30,329,543	107,311,366
2026	239,429	135,775	249,467	3,022,371	23,471,065	9,827,889	12,097,679	14,143,381	30,195,602	106,837,145
2027	236,972	134,381	246,906	2,991,349	21,224,535	9,703,627	11,932,874	13,948,647	29,778,393	105,357,421
2028	236,814	134,292	246,742	2,989,362	22,689,742	9,715,725	11,957,318	13,978,893	29,844,175	105,592,960
2029	238,300	135,134	248,290	3,008,116	24,355,537	9,818,764	12,106,902	14,157,418	30,228,274	106,958,343
2030	233,674	132,511	243,470	2,949,715	20,968,837	9,519,823	11,680,009	13,648,619	29,134,487	103,071,684
2031	234,858	133,183	244,704	2,964,668	22,017,710	9,654,455	11,892,490	13,904,754	29,687,253	105,040,509
2032	235,998	133,829	245,892	2,979,058	23,818,669	9,705,947	11,958,023	13,981,797	29,852,086	105,624,479
2033	234,587	133,029	244,422	2,961,248	22,318,967	9,598,838	11,799,627	13,792,228	29,443,957	104,172,929
2034	235,786	133,709	245,671	2,976,384	22,997,646	9,709,931	11,970,631	13,997,668	29,886,830	105,749,492
2035	234,910	133,212	244,758	2,965,324	21,714,782	9,610,136	11,812,978	13,807,708	29,476,880	104,289,184
Total	8,343,843	5,486,002	7,975,285	126,303,963	915,562,415	391,855,289	465,933,944	537,078,184	1,143,249,366	4,032,375,396

a) Power costs for the period 1968 through 1987 are for an interim facility.
 b) The costs of Del Valle Pumping Plant are combined with those of South Bay Pumping Plant to simplify the cost allocations.

#### TABLE B-3

# Power Costs and Credits and Annual Replacement Deposits for Each Aqueduct Pumping and Power Recovery Plant (Dollars)

Sheet 2 of 2

	(Dollars) S  California Aqueduct (continued)									
	Reach 18A	Reach 22B	Reach 23	Reach 26A	Reach 29A	Reach 29G	Reach 29J	Reach 31A	Reach 33A	
Calendar Year	Alamo Powerplant (11)	Pearblossom Pumping Plant (12)	Mojave Siphon Powerplant (13)	Devil Canyon Powerplant (14)	Oso Pumping Plant (15)	Warne Powerplant (16)	Castaic Powerplant (17)	Las Perillas and Badger Hill Pumping Plants (18)	Devil's Den, Bluestone, and Polonio PPs and San Luis Obispo Pwp. (19)	Grand Total (20)
1961 1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 38,130 58,871 75,239 146,297
1966 1967 1968 1969 1970	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 6,517 120,278 79,620 137,449	0 0 0 0	198,643 263,128 2,034,449 1,366,635 1,188,766
1971 1972 1973 1974 1975	0 0 0 0	64,807 103,584 615,309 595,646 616,327	0 0 0 0	(3,112) (931,697) (939,072) (1,101,445)	1,696 180,005 274,450 322,440 457,487	0 0 0 0	0 (385,696) (1,193,216) (1,823,397) (2,835,302)	171,389 240,651 128,730 129,345 101,109	0 0 0 0	1,725,032 4,645,065 5,854,986 6,272,395 7,156,363
1976 1977 1978 1979 1980	0 0 0 0	914,440 318,880 1,801,373 1,813,744 1,866,161	0 0 0 0	(1,520,412) (1,216,060) (3,298,247) (3,335,069) (3,508,195)	314,669 53,119 251,373 157,934 170,688	0 0 0 0	(2,512,021) (1,701,284) (2,361,377) (2,749,296) (2,721,871)	151,211 85,538 197,217 209,088 182,996	0 0 0 0	7,192,331 762,343 11,818,144 10,273,049 10,593,358
1981 1982 1983 1984 1985	0 0 0 0	2,201,541 1,708,843 384,150 673,007 1,249,530	0 0 0 0	(3,772,498) (3,149,543) (5,764,122) (7,751,311) (10,518,533)	514,832 625,495 235,207 437,458 1,045,710	(973,898) (1,373,756) (2,269,583) (8,489,604)	(3,248,819) (3,476,126) (4,125,351) 1,643,951 (19,880,260)	186,954 182,305 18,756 115,959 154,637	0 0 0 0	16,783,783 16,032,833 (4,793,940) 3,280,991 (13,768,237)
1986 1987 1988 1989 1990	(1,064,432) (1,032,312) (773,793) (772,111) (845,641)	2,618,876 1,928,366 2,432,617 4,337,002 6,818,741	0 0 0 0	(12,055,463) (10,781,802) (14,655,710) (18,944,080) (21,336,948)	1,387,166 1,390,349 1,508,267 2,146,718 3,032,598	(6,276,296) (6,703,320) (7,384,227) (8,713,183) (11,692,826)	(11,466,466) (11,630,565) (12,676,489) (14,657,167) (19,863,014)	317,914 270,779 235,312 311,568 463,746	0 0 0 0	13,754,211 6,432,420 6,624,354 26,474,947 49,893,128
1991 1992 1993 1994 1995	(323,332) (974,167) (60,506) (64,321) (1,275,628)	824,464 1,228,179 (372,735) 2,625,007 1,075,751	0 0 0 0	(5,404,572) (9,773,109) (7,861,479) (12,005,935) (10,169,650)	783,801 770,338 143,818 1,233,644 (312,554)	(4,735,955) (5,540,626) (4,988,529) (6,185,852) (2,790,060)	(8,097,080) (9,312,434) (10,262,109) (10,727,203) (6,843,875)	(151,987) 79,753 (39,163) 240,888 125,091	0 0 0 0	4,584,447 (4,267,428) (21,908,710) 12,785,630 (8,614,436)
1996 1997 1998 1999 2000	(2,965,290) (4,635,900) (3,748,500) (4,949,415) (5,509,665)	2,252,269 8,444,715 9,346,691 9,866,518 13,607,279	0 (5,280,000) (4,907,800) (4,725,374) (5,746,101)	(12,174,720) (22,962,500) (25,860,000) (29,744,125) (34,472,175)	807,260 1,254,712 1,459,555 1,545,541 2,508,745	(4,250,292) (4,592,500) (5,112,500) (6,658,300) (9,528,525)	(8,457,419) (8,484,000) (9,336,500) (10,340,100) (14,997,250)	306,609 562,847 591,727 579,536 648,543	0 1,244,856 1,308,729 1,454,187 1,628,712	15,955,782 49,633,575 57,283,506 52,730,507 80,398,705
2001 2002 2003 2004 2005	(5,543,325) (5,499,360) (5,539,050) (5,432,670) (5,494,815)	12,451,744 14,260,466 14,234,891 14,380,618 13,323,071	(5,448,983) (5,743,716) (5,809,966) (5,325,440) (5,762,690)	(35,015,250) (31,907,025) (31,867,725) (31,936,875) (31,677,525)	1,864,901 5,656,740 5,662,190 5,824,423 5,374,952	(7,501,625) (18,029,650) (18,198,050) (17,955,150) (18,246,925)	(12,043,950) (28,975,200) (29,301,000) (28,868,250) (29,405,200)	603,117 838,849 829,914 866,968 784,881	1,515,573 2,561,256 2,533,974 2,647,110 2,396,475	69,844,143 117,265,714 117,979,810 121,787,538 104,238,195
2006 2007 2008 2009 2010	(5,570,415) (5,460,120) (5,480,010) (5,534,415) (5,505,975)	13,720,366 13,170,323 13,453,985 13,702,951 13,516,756	(5,578,992) (5,210,377) (5,574,646) (5,724,477) (5,647,256)	(32,055,050) (32,211,075) (32,173,100) (32,001,775) (32,073,675)	5,439,990 5,247,890 5,483,844 5,455,599 5,418,713	(18,211,725) (17,896,075) (18,290,350) (18,200,375) (18,107,750)	(29,327,900) (28,766,100) (29,484,250) (29,299,800) (29,130,350)	796,583 783,881 798,418 799,543 798,931	2,432,205 2,393,424 2,437,809 2,441,241 2,439,372	110,185,527 102,118,740 108,145,407 108,998,537 107,126,486
2011 2012 2013 2014 2015	(5,535,810) (5,507,010) (5,596,200) (5,248,395) (5,597,460)	13,606,596 13,694,876 14,826,265 14,706,862 16,045,887	(5,786,328) (5,865,563) (5,984,548) (5,058,161) (5,907,115)	(32,085,975) (32,092,175) (32,066,775) (32,311,950) (31,796,400)	5,458,143 5,460,096 5,794,774 6,187,564 6,311,436	(18,191,325) (18,156,700) (18,117,450) (18,087,350) (18,177,650)	(29,304,450) (29,235,500) (29,138,000) (29,105,400) (29,267,500)	799,736 801,989 854,169 913,078 926,002	2,441,832 2,448,714 2,608,029 2,787,900 2,827,362	108,231,961 109,024,131 123,962,629 130,489,404 141,746,726
2016 2017 2018 2019 2020	(5,482,935) (5,500,305) (5,483,385) (5,541,705) (5,599,845)	15,565,777 15,796,613 15,584,986 15,851,156 15,437,411	(5,420,045) (5,665,170) (5,695,433) (5,837,420) (5,808,906)	(32,338,850) (32,032,725) (32,154,550) (32,060,975) (31,932,025)	6,286,091 6,298,161 6,265,526 6,283,089 6,136,480	(18,164,675) (18,157,725) (18,111,075) (18,151,550) (18,130,375)	(29,251,650) (29,227,200) (29,132,550) (29,217,700) (29,176,550)	922,779 925,394 923,719 923,479 903,259	2,817,519 2,825,505 2,820,393 2,819,655 2,757,918	138,797,306 140,054,285 138,045,111 139,599,087 134,813,849
2021 2022 2023 2024 2025	(5,495,085) (5,468,130) (5,558,850) (5,460,165) (5,509,665)	15,247,294 15,276,948 15,625,204 15,201,359 15,440,827	(5,762,531) (5,903,246) (5,854,486) (5,617,947) (5,783,837)	(32,186,175) (31,818,075) (32,160,250) (32,006,700) (32,161,125)	6,132,719 6,121,828 6,158,144 6,122,950 6,175,410	(18,144,500) (18,139,850) (18,117,800) (18,147,075) (18,182,775)	(29,209,150) (29,194,200) (29,152,750) (29,213,650) (29,284,400)	901,646 900,534 907,219 900,066 905,487	2,752,992 2,749,599 2,770,011 2,748,171 2,764,719	133,252,697 131,659,323 136,756,272 131,977,346 135,615,983
2026 2027 2028 2029 2030	(5,509,125) (5,532,075) (5,555,385) (5,578,425) (5,495,940)	15,393,735 15,177,473 15,228,999 15,514,041 14,888,598	(5,829,152) (5,746,366) (5,600,510) (5,785,427) (5,389,305)	(31,985,975) (32,051,300) (31,986,925) (32,311,150) (32,338,200)	6,139,390 6,052,476 6,061,462 6,110,304 5,898,639	(18,159,375) (18,105,600) (18,134,075) (18,156,025) (17,915,875)	(29,231,700) (29,122,050) (29,181,700) (29,230,900) (28,793,700)	901,912 892,654 892,061 897,657 880,230	2,753,805 2,725,539 2,723,730 2,740,815 2,687,604	134,693,318 129,845,856 131,833,680 135,455,968 126,004,880
2031 2032 2033 2034 2035	(5,547,645) (5,525,730) (5,446,035) (5,568,120) (5,569,740)	15,056,516 15,208,878 14,941,363 15,328,536 15,272,535	(5,421,635) (5,469,918) (5,710,220) (5,834,399) (5,415,752)	(31,949,075) (32,265,750) (32,087,050) (32,133,700) (32,439,950)	6,069,239 6,076,206 6,009,582 6,044,707 5,890,895	(18,272,425) (18,206,625) (18,150,675) (18,159,050) (17,841,800)	(29,450,750) (29,345,050) (29,205,950) (29,226,150) (28,615,050)	884,692 888,987 883,672 888,189 884,889	2,701,230 2,714,340 2,698,113 2,711,904 2,701,827	129,844,731 132,611,116 128,632,632 131,955,665 129,157,726
Total	(221,968,333)	598,094,988	(218,639,238)	(1,420,684,459)	227,677,074	(732,176,907)	(1,218,637,386)	37,347,496	97,534,149	4,782,711,071

TABLE B-4 **Annual Entitlements to Project Water** 

(Acre-Feet)

Sheet 1 of 4

	ı	North Dav. A	1		(Acre-Fee	,		^	Sheet 1 of 4	
Colorate	Napa County	Solano County	Total	Alameda County FC&WCD, Zone 7	Alameda County Water District	Santa Clara Valley Water	Total	San Luis Obispo County FC&WCD	Santa Santa Barbara County FC&WCD	ea Total
Calendar Year	FC&WCD (b (1)	Water Agency (2)	Total (3)	(4)	(5)	District (6)	(7)	(8)	(9)	(10)
1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1966 1967 1968 1969 1970	0 0 0 0	0 0 0 0	0 0 0 0	0 507 6,900 8,200 10,000	0 5,248 15,000 15,500 16,200	5,783 88,000 75,000 88,000	0 11,538 109,900 98,700 114,200	0 0 0 0	0 0 0 0	0 0 0 0
1971 1972 1973 1974 1975	0 0 0 0	0 0 0 0	0 0 0 0	11,200 12,400 13,600 14,800 16,000	17,000 17,900 18,800 19,600 20,500	88,000 88,000 88,000 88,000 88,000	116,200 118,300 120,400 122,400 124,500	0 0 0 0	0 0 0 0	0 0 0 0
1976 1977 1978 1979 1980	0 0 0 0	0 0 0 0 500	0 0 0 0 500	17,200 18,400 19,600 20,800 22,000	21,300 22,200 23,100 23,900 24,800	88,000 88,000 88,000 88,000 88,000	126,500 128,600 130,700 132,700 134,800	0 0 0 0 1,000	0 0 0 0 946	0 0 0 0 1,946
1981 1982 1983 1984 1985	0 0 0 0	650 800 950 1,100 1,250	650 800 950 1,100 1,250	23,000 24,000 25,000 26,000 27,000	26,000 27,200 28,400 29,600 30,800	88,000 88,000 88,000 88,000 88,000	137,000 139,200 141,400 143,600 145,800	1,000 2,000 3,000 4,500 7,500	1,813 3,626 5,439 8,198 13,638	2,813 5,626 8,439 12,698 21,138
1986 1987 1988 1989 1990	0 0 5,745 6,195 6,940	1,400 1,550 9,726 18,420 21,250	1,400 1,550 15,471 24,615 28,190	28,000 29,000 30,000 31,000 32,000	32,100 33,300 34,500 35,700 36,900	88,000 88,000 88,000 90,000 92,000	148,100 150,300 152,500 156,700 160,900	10,000 12,500 15,500 20,000 25,000	18,210 22,704 28,222 36,342 45,486	28,210 35,204 43,722 56,342 70,486
1991 1992 1993 1994 1995	7,290 7,840 8,490 9,135 9,780	22,300 24,170 26,130 28,080 34,250	29,590 32,010 34,620 37,215 44,030	34,000 36,000 38,000 40,000 42,000	38,400 39,900 41,400 42,000 42,000	94,000 96,000 98,000 100,000 100,000	166,400 171,900 177,400 182,000 184,000	25,000 25,000 25,000 25,000 25,000	45,486 45,486 45,486 45,486 45,486	70,486 70,486 70,486 70,486 70,486
1996 1997 1998 1999 2000	10,425 11,065 11,710 12,330 13,050	37,800 38,250 38,710 39,170 39,620	48,225 49,315 50,420 51,500 52,670	44,000 46,000 46,000 46,000	42,000 42,000 42,000 42,000 42,000	100,000 100,000 100,000 100,000 100,000	186,000 188,000 188,000 188,000 188,000	25,000 25,000 25,000 25,000 25,000	45,486 38,986 38,986 45,486 45,486	70,486 63,986 63,986 70,486 70,486
2001 2002 2003 2004 2005	13,665 14,185 14,800 15,400 16,000	40,080 40,540 41,000 41,450 41,500	53,745 54,725 55,800 56,850 57,500	46,000 46,000 46,000 46,000	42,000 42,000 42,000 42,000 42,000	100,000 100,000 100,000 100,000 100,000	188,000 188,000 188,000 188,000 188,000	25,000 25,000 25,000 25,000 25,000	45,486 45,486 45,486 45,486 45,486	70,486 70,486 70,486 70,486 70,486
2006 2007 2008 2009 2010	16,450 17,000 17,650 18,200 18,750	41,550 41,600 41,650 41,700 41,750	58,000 58,600 59,300 59,900 60,500	46,000 46,000 46,000 46,000 46,000	42,000 42,000 42,000 42,000 42,000	100,000 100,000 100,000 100,000 100,000	188,000 188,000 188,000 188,000 188,000	25,000 25,000 25,000 25,000 25,000	45,486 45,486 45,486 45,486 45,486	70,486 70,486 70,486 70,486 70,486
2011 2012 2013 2014 2015	19,400 19,950 20,600 21,250 21,900	41,800 41,850 41,900 41,950 42,000	61,200 61,800 62,500 63,200 63,900	46,000 46,000 46,000 46,000 46,000	42,000 42,000 42,000 42,000 42,000	100,000 100,000 100,000 100,000 100,000	188,000 188,000 188,000 188,000 188,000	25,000 25,000 25,000 25,000 25,000	45,486 45,486 45,486 45,486 45,486	70,486 70,486 70,486 70,486 70,486
2016 2017 2018 2019 2020	22,500 23,100 23,700 24,300 24,900	42,000 42,000 42,000 42,000 42,000	64,500 65,100 65,700 66,300 66,900	46,000 46,000 46,000 46,000 46,000	42,000 42,000 42,000 42,000 42,000	100,000 100,000 100,000 100,000 100,000	188,000 188,000 188,000 188,000 188,000	25,000 25,000 25,000 25,000 25,000	45,486 45,486 45,486 45,486 45,486	70,486 70,486 70,486 70,486 70,486
2021 2022 2023 2024 2025	25,000 25,000 25,000 25,000 25,000	42,000 42,000 42,000 42,000 42,000	67,000 67,000 67,000 67,000 67,000	46,000 46,000 46,000 46,000 46,000	42,000 42,000 42,000 42,000 42,000	100,000 100,000 100,000 100,000 100,000	188,000 188,000 188,000 188,000 188,000	25,000 25,000 25,000 25,000 25,000	45,486 45,486 45,486 45,486 45,486	70,486 70,486 70,486 70,486 70,486
2026 2027 2028 2029 2030	25,000 25,000 25,000 25,000 25,000	42,000 42,000 42,000 42,000 42,000	67,000 67,000 67,000 67,000 67,000	46,000 46,000 46,000 46,000 46,000	42,000 42,000 42,000 42,000 42,000	100,000 100,000 100,000 100,000 100,000	188,000 188,000 188,000 188,000 188,000	25,000 25,000 25,000 25,000 25,000	45,486 45,486 45,486 45,486 45,486	70,486 70,486 70,486 70,486 70,486
2031 2032 2033 2034 2035	25,000 25,000 25,000 25,000 25,000	42,000 42,000 42,000 42,000 42,000	67,000 67,000 67,000 67,000 67,000	46,000 46,000 46,000 46,000 46,000	42,000 42,000 42,000 42,000 42,000	100,000 100,000 100,000 100,000 100,000	188,000 188,000 188,000 188,000 188,000	25,000 25,000 25,000 25,000 25,000	45,486 45,486 45,486 45,486 45,486	70,486 70,486 70,486 70,486 70,486
Total	878,695	1,848,396	2,727,091	2,494,607	2,459,248	6,510,783	11,464,638	1,227,000	2,218,494	3,445,494

a) Entitlements for the South Bay area were supplied by non-Project water for the period June 1962 through November 1967. Actual delivery quantities of Project water are shown for 1967. b) District's Table A quantities exclude amounts during the period 1968 through 1987 that are assumed to be supplied by non-Project water.

TABLE B-4 Annual Entitlements to Project Water
(Acre-Feet)

Sheet 2 of 4

	1			,	e-Feet)				Sheet 2 of 4
					Joaquin Valley A	Area			
Calendar Year	Dudley Ridge Water District (11)	Empire West Side Irrigation District (12)	Municipal and Industrial (13)	County Water Age Agricultural (14)	Total (15)	County of Kings (16)	Oak Flat Water District (17)	Tulare Lake Basin Water Storage District (18)	Total (19)
1962	0	0	0	0	0	0	0	0	0 0
1963	0	0	0	0	0	0	0	0	
1964	0	0	0	0	0	0	0	0	
1965	0	0	0	0	0	0	0	0	
1966 1967 1968 1969 1970	0 0 14,300 14,325 15,700	0 0 1,000 3,000 3,000	0 0 0 0 28,700	0 0 46,600 95,700 116,400	0 0 46,600 95,700 145,100	0 900 1,200 1,300	0 0 2,300 2,500 2,600	0 0 12,250 46,350 34,300	0 0 77,350 163,075 202,000
1971	17,900	3,000	35,700	154,600	190,300	1,300	2,800	36,500	251,800
1972	20,000	3,000	39,200	231,500	270,700	1,400	5,366	112,600	413,066
1973	22,000	3,000	43,500	267,000	310,500	1,500	3,100	43,552	383,652
1974	33,390	3,000	48,000	299,000	347,000	1,500	3,471	72,289	460,650
1975	40,555	3,000	52,700	358,120	410,820	1,600	3,576	86,258	545,809
1976	30,921	3,000	56,100	386,050	442,150	1,600	4,039	61,707	543,417
1977	30,400	3,000	60,600	423,000	483,600	1,700	3,700	59,000	581,400
1978	32,500	0	64,100	470,200	534,300	1,900	3,900	63,300	635,900
1979	38,544	3,000	67,600	516,300	583,900	2,000	4,000	71,241	702,685
1980	41,000	3,000	71,100	563,400	634,500	2,200	5,700	71,700	758,100
1981	41,000	3,000	74,800	616,600	691,400	2,300	4,300	76,000	818,000
1982	41,000	3,000	79,600	665,700	745,300	2,500	4,500	80,200	876,500
1983	42,900	3,000	83,500	721,600	805,100	2,800	3,770	9,548	867,118
1984	45,100	3,000	103,600	757,000	860,600	3,100	4,800	62,611	979,211
1985	47,200	3,000	108,900	806,100	915,000	3,400	4,900	45,549	1,019,049
1986	49,300	3,000	113,400	820,246	933,646	3,700	5,100	97,200	1,091,946
1987	51,400	3,000	119,100	904,400	1,023,500	4,000	5,200	101,400	1,188,500
1988	53,500	3,000	123,900	950,700	1,074,600	4,000	5,400	105,600	1,246,100
1989	55,600	3,000	128,200	984,100	1,112,300	4,000	5,600	109,900	1,290,400
1990	28,850	3,000	134,600	1,018,800	1,153,400	4,000	5,700	118,500	1,313,450
1991	53,411	3,000	134,600	1,018,800	1,153,400	4,000	5,700	118,500	1,338,011
1992	57,700	3,000	134,600	1,018,800	1,153,400	4,000	5,700	118,500	1,342,300
1993	57,700	3,000	134,600	1,018,800	1,153,400	4,000	5,700	118,500	1,342,300
1994	57,700	3,000	134,600	1,018,800	1,153,400	4,000	5,700	118,500	1,342,300
1995	57,700	3,000	134,600	1,018,800	1,153,400	4,000	5,700	118,500	1,342,300
1996	53,370	3,000	134,600	982,460	1,117,060	4,000	5,700	118,500	1,301,630
1997	53,370	3,000	134,600	978,130	1,112,730	4,000	5,700	118,500	1,297,300
1998	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
1999	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2000	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2001	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2002	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2003	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2004	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2005	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2006	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2007	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2008	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2009	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2010	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2011	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2012	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2013	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2014	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2015	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2016	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2017	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2018	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2019	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2020	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2021	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2022	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2023	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2024	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2025	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2026 2027 2028 2029 2030	53,370 53,370 53,370 53,370 53,370	3,000 3,000 3,000 3,000 3,000	134,600 134,600 134,600 134,600	953,130 953,130 953,130 953,130 953,130	1,087,730 1,087,730 1,087,730 1,087,730 1,087,730	4,000 4,000 4,000 4,000 4,000	5,700 5,700 5,700 5,700 5,700	118,500 118,500 118,500 118,500 118,500	1,272,300 1,272,300 1,272,300 1,272,300 1,272,300
2031	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2032	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2033	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2034	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2035	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
Total	3,226,396	199,000	7,693,900	55,446,646	63,140,546	233,900	352,822	6,910,055	74,062,719

TABLE B-4
Annual Entitlements to Project Water

(Acre-Feet) Sheet 3 of 4

					Southern Ca	,				Sheet 3 of 4
Calendar Year	Antelope Valley-East Kern Water Agency (20)	Castaic Lake Water Agency (21)	Coachella Valley Water District (22)	Crestline- Lake Arrowhead Water Agency (23)	Desert Water Agency (24)	Littlerock Creek Irrigation District (25)	Mojave Water Agency (26)	Palmdale Water District (27)	San Bernardino Valley Municipal Water District (28)	San Gabriel Valley Municipal Water District (29)
1962 1963 1964 1965	0 0 0	0 0 0	0 0 0 0	0 0 0 0	0 0 0	0 0 0	0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1966 1967 1968 1969 1970	0 0 0 0	0 0 3,700 5,000 5,700	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1971 1972 1973 1974 1975	0 20,000 25,000 30,000 35,000	6,700 8,936 12,400 15,400 18,200	5,200 5,800 6,400 7,000	0 526 870 1,160 1,450	8,000 9,000 10,000 11,000	0 170 290 400 520	8,400 10,700 13,100 15,400	0 1,620 2,940 4,260 5,580	1,677 48,000 50,000 52,500	122 11,500 12,300 13,100
1976	44,000	21,200	7,600	1,740	12,000	640	17,800	6,900	55,000	14,000
1977	50,000	24,100	8,421	2,030	13,000	730	20,200	8,220	57,500	14,800
1978	57,000	24,762	9,242	2,320	14,000	920	0	9,340	60,000	15,700
1979	63,000	28,000	10,063	2,610	15,000	1,040	24,900	10,260	62,500	16,600
1980	69,200	30,400	10,884	2,900	17,000	1,150	27,200	11,180	65,500	17,400
1981	75,000	32,800	12,105	3,190	19,000	1,270	23,100	11,700	68,500	18,300
1982	81,300	34,800	13,326	3,480	21,000	1,380	22,843	12,320	71,500	19,100
1983	87,700	37,300	14,547	3,770	23,000	1,500	34,300	12,940	74,500	19,900
1984	35,000	39,600	15,768	4,060	25,000	1,610	36,700	13,560	78,000	20,700
1985	40,000	41,800	16,989	4,350	27,000	1,730	39,000	14,180	81,500	21,800
1986	42,000	43,600	18,210	4,640	29,000	1,840	41,400	14,800	85,000	23,200
1987	44,000	45,600	19,431	4,930	31,500	1,960	43,700	15,420	89,000	24,600
1988	46,000	48,000	20,652	5,220	34,000	2,070	46,000	16,040	93,000	26,000
1989	125,700	50,100	21,873	5,510	36,500	2,190	48,500	16,660	97,000	27,400
1990	132,100	52,000	23,100	5,800	38,100	2,300	50,800	17,300	101,500	28,800
1991	138,400	54,200	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
1992	138,400	54,200	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
1993	138,400	54,200	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
1994	138,400	54,200	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
1995	138,400	54,200	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
1996	138,400	54,200	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
1997	138,400	54,200	23,100	5,800	38,100	2,300	50,800	17,300	102,600	28,800
1998	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
1999	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2000	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2001	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2002	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2003	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2004	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2005	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2006	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2007	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2008	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2009	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2010	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2011	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2012	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2013	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2014	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2015	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2016	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2017	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2018	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2019	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2020	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2021	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2022	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2023	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2024	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2025	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2026	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2027	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2028	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2029	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2030	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2031	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2032	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2033	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2034	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2035	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
Total	7,330,000	3,069,098	1,286,111	321,556	2,107,600	127,210	3,760,043	983,720	5,909,177	1,641,322

# TABLE B-4 Annual Entitlements to Project Water

(Acre-Feet)

Southern California Area Feather River Area Metropolitan Ventura South Bay San Gorgonio Water District of County Flood Plumas Area Pass Water Southern Control City of County of County Future Calenda California District Total Yuba City Butte FC&WCD Total Contractor Grand Total Agency (32) (39) (30)(31)(33)(34)(35)(36)(37)(38) Year 1962 0 0 0 0 1963 1964 0 0 0 0 0 0 0 0 0 0 1965 0 0 0 0 0 0 0 0 0 0 1966 0 0 0 0 0 0 0 0 0 0 1967 0 0 0 0 0 0 0 0 0 11,538 1968 0 0 0 3.700 0 300 250 550 0 191.500 1969 5,000 350 270 620 267 395 1970 0 0 0 0 400 300 700 0 322,600 5.700 0 0 0 1971 6,700 450 440 0 375,590 209,423 481,100 597,920 1972 0 154 772 n n 500 470 970 0 741.759 1973 354,600 454,900 0 0 600 500 1,100 986,252 0 0 1974 700 530 1,230 1.182,200 0 0 Ö 1,050 1,610 0 1,386,869 1975 555,200 714.950 1976 0 655.600 0 836,480 0 1.400 590 1,990 0 1,508,387 1977 0 755.900 0 954.901 1.800 620 2.420 0 1.667.321 1978 1979 856,300 956,600 1,049,584 1,190,573 1,200 1,450 1,850 2,130 1,818,034 2,028,088 0 650 0 680 1980 6.800 1,057,000 1,000 1,317,614 0 1,100 710 1,810 0 2,214,770 n 1 157 300 2 000 1 432 065 1 200 740 1 940 n 2 392 468 1981 7 800 8,800 1,257,600 3,000 1,550,449 0 1,200 770 1,970 0 2,574,545 1982 1983 9,800 10,800 1,358,000 1,458,300 4,000 5,000 1,681,257 1,744,098 1,200 1,200 800 2,000 3,630 0 2,701,164 2,884,337 1.600 0 1985 11.800 1 558 700 6,000 1 864 849 1.700 1 200 860 3.760 3 055 846 1986 12.900 1.659.300 8.000 1.983.890 2.100 1.200 890 0 3.257.736 4.190 1987 14,000 1,759,800 10,000 2,103,941 2,500 1,200 920 4,620 3,484,115 1988 15 100 1 860 400 13 000 2 225 482 2 900 1 200 960 5,060 5,500 3 688 335 0 0 0 1080 16.200 1 961 000 16,000 2 424 633 3,300 1 200 1 000 3 958 190 1990 17.300 2.011.500 20.000 2.500.600 3.800 1.200 1.040 6.040 4.079.666 1991 17,300 2,011,500 20,000 2,510,200 9,600 1,200 1,080 11,880 0 4,126,567 17,300 17,300 17,300 2,011,500 2,011,500 2,011,500 20,000 20,000 20,000 2,510,200 2,510,200 2,510,200 1,200 1,200 1,200 11,920 11,960 12,000 4,138,816 4,146,966 4,154,201 1992 9,600 9,600 1,120 0 1993 1994 1,160 1,200 9,600 1995 17,300 2,011,500 20,000 2,510,200 9,600 1,200 1,250 12,050 0 4,163,066 4,111,341 1996 0 2,011,500 20,000 2,492,900 9,600 1,200 1,300 12,100 0 1997 n 2 011 500 20,000 2 492 900 9 600 1 200 1.350 12 150 n 4 103 651 2,011,500 2,011,500 2,011,500 20,000 20,000 1,400 1,450 4,106,806 4,115,436 2,000 2,519,900 2,520,900 9,600 1,200 12,200 0 1999 3.000 9,600 1.200 12,250 9,600 20,000 2,521,900 1,200 1,510 12,310 0 4,117,666 2000 4,000 2,011,500 2001 4.000 2.011.500 20,000 20,000 2.521.900 9.600 27.500 1.570 38,670 0 4.145.101 2,522,900 9,600 27,500 1,630 0 2002 2.011.500 4,147,141 5.000 38,730 2003 2004 6,000 6,500 2,011,500 2,011,500 20,000 2,523,900 2,524,400 9,600 9,600 27,500 27,500 1,690 1,750 38,790 38,850 4,149,276 4,150,886 2005 7,000 2,011,500 20,000 2,524,900 9.600 27,500 1,810 38,910 0 4,152,096 2006 7.500 2.011.500 20.000 2.525.400 9.600 27.500 1.880 38.980 0 4.153.166 2007 17,300 2,011,500 20,000 2,535,200 9,600 27,500 1,950 39,050 0 4,163,636 2008 17,300 17,300 2,011,500 2,011,500 20,000 2 535 200 9 600 27,500 27,500 2 020 39.120 0 4 164 406 20,000 2.535.200 9,600 2.090 39,190 4,165,076 17.300 0 2010 2.011.500 20.000 2.535.200 9.600 27.500 2.160 39.260 4.165.746 2011 17,300 2,011,500 20,000 2,535,200 9,600 27,500 2,240 39,340 0 4,166,526 27,500 27,500 27,500 27,500 17,300 17,300 39,420 39,510 2012 2,011,500 20,000 2,535,200 9,600 2,320 0 4,167,206 2,535,200 2,535,200 20.000 9.600 2,410 2,500 0 4.167.996 2013 2,011,500 2.011,500 2014 17,300 20,000 9,600 39,600 4,168,786 2015 17,300 20,000 2,535,200 27,500 0 2,011,500 9,600 2,600 39,700 4,169,586 2016 17,300 2,011,500 20,000 2,535,200 9,600 27,500 2,700 39,800 0 4,170,286 17,300 17,300 17,300 2,011,500 2,011,500 2,011,500 27,500 27,500 27,500 2017 20,000 2.535,200 9 600 2.700 39 800 0 4.170.886 20,000 20,000 2,700 2,700 2,700 4,171,486 4,172,086 2,535,200 2,535,200 2018 9,600 39,800 0 2019 9,600 39.800 17,300 2,011,500 20,000 2,535,200 27,500 0 4,172,686 2020 9.600 2.700 39.800 17,300 17,300 2021 2 011 500 20 000 2 535 200 9 600 27 500 2 700 39 800 0 4 172 786 27,500 20,000 2.535,200 9,600 2022 2.011.500 2.700 39.800 0 4.172.786 2023 2024 17,300 17,300 2,011,500 2,011,500 20,000 2,535,200 2,535,200 9,600 9,600 27,500 27,500 2,700 2,700 39,800 39,800 0 4,172,786 4,172,786 2025 17,300 2,011,500 20,000 2.535,200 9,600 27,500 2,700 39.800 0 4,172,786 n 2026 17 300 2 011 500 20 000 2 535 200 9 600 27 500 2 700 39 800 4 172 786 17,300 2,700 0 2027 2,011,500 20,000 2,535,200 9,600 27,500 39,800 4,172,786 2028 2029 17,300 17,300 2,011,500 2,011,500 2,535,200 2,535,200 27,500 27,500 2,700 2,700 4,172,786 4,172,786 20.000 9.600 39 800 0 20,000 9,600 39,800 2030 17.300 2.011.500 20.000 2.535.200 9 600 27.500 2.700 39.800 0 4.172.786 2031 2,011,500 2,535,200 9,600 2,700 39,800 0 4,172,786 17.300 20.000 27.500 2032 17,300 2,011,500 20,000 2,535,200 9,600 27,500 2,700 39,800 0 4,172,786 2033 17,300 17,300 2,011,500 2.011.500 20.000 2.535.200 9.600 27,500 27,500 2.700 39.800 0 4.172.786 2034 20,000 2 535 200 9,600 2,700 39,800 4.172.786 2035 20.000 2.535,200 27.500 39.800 0 17.300 2.011.500 9.600 2.700 4.172.786 0 Total 764,500 112,360,272 988,000 140,648,609 449,900 997,800 112,820 1,560,520 233,909,071

Sheet 4 of 4

TABLE B-5A

Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(Acre-Feet)

	ı		North Pour	Aqueduct	(Acre-Fee	,,,	٠٠	uth Bay Aqued	luct	Sheet 1 of 12
	Onimate V. "	Reach 1	Reach 3A	Reach 3B		Read		Reach 2	Reach 4	Reach 5
Calendar Year	Grizzly Valley Pipeline PC FC&WCD (1)	SCWA (2)	SCWA	NC FC&WCD (a (4)	Total (5)	ACWD (6)	AC FC&WCD (7)	AC FC&WCD (8)	AC FC&WCD (9)	ACWD (10)
1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	8,412 10,914 19,238 15,280	141 814 248 637	353 917 1,425 1,830	0 0 0 138	0 0 0 0
1966 1967 1968 1969 1970	0 0 0 0 70	0 0 0 0	0 0 0 0	0 1,214 2,687 3,618	0 1,214 2,687 3,618	0 0 0 0	2,475 1,527 1,608 1,165 1,345	2,537 2,391 3,799 3,459 4,558	499 862 721 1,851 3,182	0 0 0 0
1971 1972 1973 1974 1975	64 505 679 648 405	0 0 0 0	0 0 0 0	2,521 3,647 3,792 4,870 6,840	2,521 3,647 3,792 4,870 6,840	0 0 0 0	546 1,066 430 177 137	1,908 4,605 1,123 0 1,783	2,403 2,041 1,193 975 1,864	0 1,489 0 0
1976 1977 1978 1979 1980	382 303 278 329 295	0 0 0 0	0 0 0 0	7,122 8,226 6,034 6,561 6,707	7,122 8,226 6,034 6,561 6,707	0 0 0 0	265 210 422 197 77	7,204 4,491 2,426 4,283 3,883	3,384 2,213 3,754 5,567 6,686	0 0 0 0 1,508
1981 1982 1983 1984 1985	355 305 262 272 254	0 0 0 0	0 0 0 0	9,001 1,213 2,287 2,923 4,039	9,001 1,213 2,287 2,923 4,039	0 0 0 0	1,250 473 179 165 213	4,648 3,043 2,712 4,219 5,199	5,273 4,406 1,714 2,219 2,060	5,752 0 0 0 0
1986 1987 1988 1989 1990	317 452 523 486 548	1,400 1,550 0 10 3,275	0 9,725 17,246 15,856	3,519 7,693 5,392 6,195 6,940	4,919 9,243 15,117 23,451 26,071	0 0 0 0	200 218 222 222 256	6,052 7,538 8,302 8,051 8,160	2,062 2,372 4,681 6,562 8,347	0 0 0 0
1991 1992 1993 1994 1995	420 485 444 492 308	3,117 5,553 14,709 7,171 5,452	3,855 9,220 14,471 23,819 15,893	1,380 4,001 5,286 6,792 5,182	8,352 18,774 34,466 37,782 26,527	0 0 0 0	162 217 190 132 278	3,676 5,177 5,843 4,482 6,236	3,269 2,188 8,430 5,427 7,195	0 0 1,650 0
1996 1997 1998 1999 2000	360 1,350 1,400 1,450 1,510	12,842 16,320 21,460 21,100 21,550	17,069 15,990 17,250 18,070 18,070	4,893 10,425 11,065 11,710 12,330	34,804 42,735 49,775 50,880 51,950	0 0 0 0	277 498 383 353 328	6,151 10,103 9,065 11,101 11,259	5,119 14,874 10,858 9,358 7,973	0 0 0 0
2001 2002 2003 2004 2005	1,570 1,630 1,690 1,750 1,810	22,010 21,250 21,300 21,350 21,545	17,980 19,290 19,700 20,100 19,978	12,730 14,185 14,800 15,400 16,000	52,720 54,725 55,800 56,850 57,523	0 0 0 0	328 221 221 221 221	11,422 10,241 10,241 10,241 10,241	6,509 16,346 16,346 16,346 16,346	0 0 0 0
2006 2007 2008 2009 2010	1,880 1,950 2,020 2,090 2,160	21,450 21,500 21,550 21,600 21,650	20,100 20,100 20,100 20,100 20,100	16,450 17,000 17,650 18,200 18,750	58,000 58,600 59,300 59,900 60,500	0 0 0 0	221 221 221 221 221 221	10,241 10,241 10,241 10,241 10,241	16,346 16,346 16,346 16,346 16,346	0 0 0 0
2011 2012 2013 2014 2015	2,240 2,320 2,410 2,500 2,600	21,700 21,750 21,800 21,850 21,900	20,100 20,100 20,100 20,100 20,100	19,400 19,950 20,600 21,250 21,900	61,200 61,800 62,500 63,200 63,900	0 0 0 0	221 221 221 221 221	10,241 10,241 10,241 10,241 10,241	16,346 16,346 16,346 16,346	0 0 0 0
2016 2017 2018 2019 2020	2,700 2,700 2,700 2,700 2,700	21,816 21,816 21,816 21,816 21,816	20,184 20,184 20,184 20,184 20,184	22,500 23,100 23,700 24,300 24,900	64,500 65,100 65,700 66,300 66,900	0 0 0 0	221 221 221 221 221	10,241 10,241 10,241 10,241 10,241	16,346 16,346 16,346 16,346	0 0 0 0
2021 2022 2023 2024 2025	2,700 2,700 2,700 2,700 2,700	21,816 21,816 21,816 21,816 21,816	20,184 20,184 20,184 20,184 20,184	25,000 25,000 25,000 25,000 25,000	67,000 67,000 67,000 67,000 67,000	0 0 0 0	221 221 221 221 221	10,241 10,241 10,241 10,241 10,241	16,346 16,346 16,346 16,346 16,346	0 0 0 0
2026 2027 2028 2029 2030	2,700 2,700 2,700 2,700 2,700	21,816 21,816 21,816 21,816 21,816	20,184 20,184 20,184 20,184 20,184	25,000 25,000 25,000 25,000 25,000	67,000 67,000 67,000 67,000 67,000	0 0 0 0	221 221 221 221 221 221	10,241 10,241 10,241 10,241 10,241	16,346 16,346 16,346 16,346 16,346	0 0 0 0
2031 2032 2033 2034 2035	2,700 2,700 2,700 2,700 2,700 2,700	21,816 21,816 21,816 21,816 21,816	20,184 20,184 20,184 20,184 20,184	25,000 25,000 25,000 25,000 25,000	67,000 67,000 67,000 67,000 67,000	0 0 0 0 0	221 221 221 221 221 221	10,241 10,241 10,241 10,241 10,241	16,346 16,346 16,346 16,346 16,346	0 0 0 0
Total	100,571	896,034	898,262	943,870	2,738,166	53,844	27,545	543,608	713,993	10,399

a) For the period 1968 through 1987, deliveries are non-Project water pumped through an interim facility.

TABLE B-5A Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(Acre-Feet) Sheet 2 of 12

	1	South	Ray Aguer	luct (b (cont	inued)	(Acre	:-reei)			California	Aqueduct		Sheet 2 of 12
		300011	Бау Ацией	uci (b (com	inueu)		No	th San Joac	quin	Camornia	San Luis	Division	
	Reach 5	Reach 6	Reach 7	Reach 8	Reach 9		1101	Reach 2A		Reach 3	Sail Luis	Reach 4	
Calendar Year	AC	AC FC&WCD (12)	ACWD (13)	ACWD (14)	SCVWD (15)	Total (16)	OFWD (c (17)	TLBWSD (18)	SCVWD (19)	DRWD (20)	KCWA (M&I) (21)	KCWA (Ag) (22)	DRWD (23)
1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 1,127	0 0 0 0	0 0 0 15,014	8,906 12,645 20,911 34,026	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0	0 0 0	0 0 0
1966 1967 1968 1969 1970	0 0 5 160 164	0 0 0 0	14,864 12,882 24,817 813 0	0 0 0 0	34,538 39,101 70,105 62,264 80,311	54,913 56,763 101,055 69,712 89,560	0 0 3,084 3,016 5,911	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1971 1972 1973 1974 1975	160 2,777 229 162 120	0 0 0 0 714	5,961 26,182 2,521 0 393	0 0 0 4 593	87,606 100,266 88,582 88,000 88,000	98,584 138,426 94,078 89,318 93,604	7,212 8,166 3,214 3,471 3,576	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1976 1977 1978 1979 1980	817 524 2,034 3,937 0	5,461 5,206 2,348 5,341 6,144	13,774 11,284 854 3,430 2,824	7,526 7,556 5,009 7,444 6,702	88,000 76,220 95,727 91,991 88,000	126,431 107,704 112,574 122,190 115,824	4,112 1,472 3,906 6,149 5,700	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1981 1982 1983 1984 1985	1,157 630 50 55 63	7,262 4,571 111 126 7,537	7,595 1,776 0 0 11,203	8,570 4,540 3,157 3,338 7,813	88,000 87,261 86,733 88,000 88,000	129,507 106,700 94,656 98,122 122,088	4,300 3,838 3,822 5,700 5,433	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1986 1987 1988 1989	212 285 189 418 593	2,083 12,993 12,436 10,974 15,678	5,311 15,488 24,259 17,340 22,149	7,068 9,902 9,205 8,702 9,554	88,000 88,000 87,961 90,000 91,800	110,988 136,796 147,255 142,269 156,537	5,107 5,625 4,412 6,091 2,922	0 0 0 300 0	0 0 0 0 200	0 0 0 602 0	0 0 0 0	0 0 0 12,647 0	0 0 0 1,898 0
1991 1992 1993 1994 1995	359 154 5,964 822 955	1,945 6,933 13,208 9,679 15,427	9,155 12,621 1,792 3,379 21	3,493 6,532 6,829 19,532 17,772	28,200 42,839 62,065 57,115 28,756	50,259 76,661 105,971 100,568 76,640	141 2,239 2,858 3,071 5,169	0 0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0 3,500	0 0 0 0 14,446
1996 1997 1998 1999 2000	531 2,660 2,860 2,960 2,960	6,888 17,212 7,834 22,228 23,480	1,871 7,413 5,135 5,500 10,996	11,591 27,387 28,165 28,165 23,804	44,850 60,000 100,000 100,000 100,000	77,278 140,147 164,300 179,665 180,800	4,904 5,700 5,700 5,700 5,700	0 0 0 0	0 0 0 0	0 0 0 0	1,125 0 0 0 0	4,162 0 0 0 0	0 0 0 0
2001 2002 2003 2004 2005	2,960 1,780 1,780 1,780 1,780	24,781 17,412 17,412 17,412 17,412	3,882 9,739 9,739 9,739 9,739	30,918 32,261 32,261 32,261 32,261	100,000 100,000 100,000 100,000 100,000	180,800 188,000 188,000 188,000 188,000	5,700 5,700 5,700 5,700 5,700	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
2006 2007 2008 2009 2010	1,780 1,780 1,780 1,780 1,780	17,412 17,412 17,412 17,412 17,412	9,739 9,739 9,739 9,739 9,739	32,261 32,261 32,261 32,261 32,261	100,000 100,000 100,000 100,000 100,000	188,000 188,000 188,000 188,000 188,000	5,700 5,700 5,700 5,700 5,700	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
2011 2012 2013 2014 2015	1,780 1,780 1,780 1,780 1,780	17,412 17,412 17,412 17,412 17,412	9,739 9,739 9,739 9,739 9,739	32,261 32,261 32,261 32,261 32,261	100,000 100,000 100,000 100,000 100,000	188,000 188,000 188,000 188,000 188,000	5,700 5,700 5,700 5,700 5,700	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
2016 2017 2018 2019 2020	1,780 1,780 1,780 1,780 1,780	17,412 17,412 17,412 17,412 17,412	9,739 9,739 9,739 9,739 9,739	32,261 32,261 32,261 32,261 32,261	100,000 100,000 100,000 100,000 100,000	188,000 188,000 188,000 188,000 188,000	5,700 5,700 5,700 5,700 5,700	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
2021 2022 2023 2024 2025	1,780 1,780 1,780 1,780 1,780	17,412 17,412 17,412 17,412 17,412	9,739 9,739 9,739 9,739 9,739	32,261 32,261 32,261 32,261 32,261	100,000 100,000 100,000 100,000 100,000	188,000 188,000 188,000 188,000 188,000	5,700 5,700 5,700 5,700 5,700	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
2026 2027 2028 2029 2030	1,780 1,780 1,780 1,780 1,780	17,412 17,412 17,412 17,412 17,412	9,739 9,739 9,739 9,739 9,739	32,261 32,261 32,261 32,261 32,261	100,000 100,000 100,000 100,000 100,000	188,000 188,000 188,000 188,000 188,000	5,700 5,700 5,700 5,700 5,700	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
2031 2032 2033 2034 2035	1,780 1,780 1,780 1,780 1,780	17,412 17,412 17,412 17,412 17,412	9,739 9,739 9,739 9,739 9,739	32,261 32,261 32,261 32,261 32,261	100,000 100,000 100,000 100,000 100,000	188,000 188,000 188,000 188,000 188,000	5,700 5,700 5,700 5,700 5,700	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
Total	98,446	840,608	619,738	1,407,745	6,201,305	10,517,231	346,921	300	200	602	1,125	20,309	16,344

b) For the period June 1962 through November 1967, deliveries were supplied by non-Project water. c) Includes 425 AF of 1998 advance entitlement and 141 AF of 1992 advance entitlement.

## TABLE B-5A Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(Acre-Feet) Sheet 3 of 12

					Ca	alifornia Aque	duct (continu					Sheet 3 of 12
						an Luis Divisi	on (continue					
	Reach 4				ach 5			Reach 6		Reach 7		Reach 8C
Calendar Year	TLBWSD (24)	CLWA (25)	TLBWSD (26)	KCWA (M&I) (27)	KCA (Ag) (28)	DRWD (29)	OFWD (30)	KCWA (Ag) (31)	KCWA (Ag) (32)	KCWA (M&I) (33)	CLWA (34)	KCWA (M&I) (35)
1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1966 1967 1968 1969 1970	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1971 1972 1973 1974 1975	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1976 1977 1978 1979 1980	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1981 1982 1983 1984 1985	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1986 1987 1988 1989 1990	0 0 0 0 1,500	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 18,831 0	0 0 0 0	0 0 0 0	0 0 0 8,260 0	0 0 0 5,262 0	0 0 0 0	0 0 0 0	0 0 0 0
1991 1992 1993 1994 1995	0 0 0 0	0 0 5,095 0	0 0 1,624 0	0 0 0 0	0 0 28,200 0 21,776	0 10,823 27,200 0	0 0 2,000 0 0	0 0 31,200 0 3,932	0 0 0 0 20,595	0 0 18,157 0 10,875	0 0 0 2,100 0	0 0 0 0 989
1996 1997 1998 1999 2000	0 0 0 0	0 0 0 0	4,000 0 0 0 0	1,125 0 0 0 0	81,507 0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	69,704 0 0 0 0	3,424 0 0 0 0	0 0 0 0	0 0 0 0
2001 2002 2003 2004 2005	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
2006 2007 2008 2009 2010	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
2011 2012 2013 2014 2015	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
2016 2017 2018 2019 2020	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
2021 2022 2023 2024 2025	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
2026 2027 2028 2029 2030	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
2031 2032 2033 2034 2035	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
Total	1,500	5,095	5,624	1,125	150,314	38,023	2,000	43,392	95,561	32,456	2,100	989

TABLE B-5A Annual Water Quantities Delivered from Each Agueduct Reach to Each Contractor

(Acre-Feet) Sheet 4 of 12 California Aqueduct (continued) South San Joaquin Division Reach 8C Reach 8D KCWA KCWA KCWA SLOCFC Calendar (Ag)DRWD TLBWSD **EWSID** CK (M&I) (Ag) DRWD CK &WCD TLBWSD (36) (38) (39)(40) (41) (42) (43)(44) (45) (46) (37)Year 0 0 1963 0 0 0 0 0 0 0 n 0 0 1964 1965 0 0 0 0 0 0 0 0 0 0 0 1966 0 0 0 0 0 0 0 0 0 0 0 1967 0 0 n 0 0 0 0 0 25.100 1.978 26.360 900 0 0 0 1968 0 0 0 1969 Ô 7,081 100 31 375 0 0 0 0 0 1970 0 0 3,942 0 40,407 0 3,408 1971 0 0 80,906 5,990 3,700 0 0 41,053 0 0 41,579 1,400 1,500 1,500 1972 0 n 144 843 5.795 n n 42 443 n 0 113 550 0 22,057 1973 3,000 1,500 0 24,147 0 0 1974 0 32.603 3.000 0 33.390 39.686 0 0 0 40,555 0 0 0 1976 0 0 26 595 3,000 1,600 0 41,421 0 32.216 0 11.153 0 5.097 1977 0 12.984 738 1.530 1978 1979 3,934 74,758 454 1,739 2,070 2,000 51,747 38,544 8,119 80,363 0 0 1980 0 0 35,140 894 2.200 0 0 41,000 0 0 34,104 0 0 0 1981 n n 50 888 5 859 2 300 41 000 n 32 550 0 0 1982 0 4,405 361 1,536 41,000 14,146 1,001 3,677 3,550 3,100 1983 0 0 0 0 0 42.900 0 0 2,066 5 197 0 0 1985 0 0 68 638 3 400 46 251 0 0 41 153 0 0 40,017 0 0 50,249 0 0 39,338 1986 1.170 3.700 30,359 2,525 4,000 0 0 46,288 0 62,725 1987 1988 0 47.831 3.775 4.000 0 0 47.994 0 0 48.035 1989 ñ 2 391 63 703 3,000 4 000 52 158 63 947 Ö 0 161 0 23.504 1.279 2.000 36.296 0 32.066 1990 0 1991 0 1,697 221 0 0 0 927 0 483 1992 0 280 15.982 1.354 1 806 0 0 12.667 0 0 30.746 65,732 40,852 57,112 21.510 2,741 1,666 0 1.726 0 0 1993 4,000 2,116 23,221 28,793 0 0 1994 0 2,959 27,270 0 0 1995 10.527 40,934 1,631 4,000 45,240 57,435 0 1996 1,500 95 84.130 1.868 4,000 1,455 52,722 100 148.745 1997 0 0 47,400 3.000 4.000 0 0 53.370 0 0 71,100 47,400 47,400 4,000 4,000 0 53,370 53,370 0 71,100 71,100 0 0 3,000 1999 2000 0 0 47,400 3,000 4,000 0 0 53,370 0 0 71,100 3.000 0 0 53.370 0 2001 0 0 47 400 4 000 0 71.100 0 0 0 47,400 3,000 4.000 53,370 0 71,100 2002 2003 2004 47,400 47,400 3,000 3,000 4,000 4,000 53,370 53,370 71,100 71,100 0 0 2005 0 0 47,400 3.000 4.000 0 0 53.370 0 0 71,100 2006 0 0 47,400 3.000 4.000 0 0 53.370 0 0 71.100 47,400 3,000 53,370 2007 4,000 71,100 4,000 4,000 0 0 71,100 71,100 2008 0 n 47,400 47,400 3.000 0 0 0 53,370 53,370 0 3.000 0 0 2010 47.400 3.000 4.000 53.370 0 71,100 0 0 2011 0 0 47,400 3,000 4,000 53,370 0 71,100 2012 Ô 0 47,400 3,000 4,000 0 0 53,370 0 0 71,100 71,100 71,100 47,400 47,400 3.000 4,000 4.000 0 0 53.370 0 2013 0 0 0 2014 3,000 53,370 0 0 0 2015 0 0 47,400 3,000 4,000 53,370 0 71,100 2016 0 0 47,400 3,000 4,000 0 0 53,370 0 0 71,100 2017 0 0 47,400 3 000 4 000 n n 53 370 n 0 71,100 47,400 47,400 71,100 71,100 71,100 3,000 3,000 4,000 4,000 0 0 53,370 53,370 0 2018 0 0 0 2019 2020 0 47,400 3,000 4,000 0 0 53,370 0 71,100 n n 53 370 n 2021 0 0 47 400 3 000 4 000 0 71 100 71,100 47,400 3.000 0 0 53,370 0 2022 0 4.000 0 0 2023 2024 47,400 47,400 3,000 3,000 4,000 4,000 53,370 53,370 71,100 71,100 0 0 2025 0 0 47,400 3.000 4.000 0 0 53.370 0 0 71,100 0 0 n n n 53 370 2026 47 400 3 000 4 000 n 71 100 0 0 2027 3,000 4,000 53,370 71,100 47,400 47,400 4,000 4,000 71,100 71,100 2028 0 0 3.000 0 0 53 370 0 0 2029 2030 0 0 47 400 3 000 4 000 0 0 53.370 0 0 71,100 2031 0 0 47,400 3,000 4,000 0 0 53,370 0 0 71,100 2032 0 0 47,400 3,000 4,000 0 0 53,370 0 0 71,100 2033 0 0 47,400 47,400 3.000 4,000 4,000 0 0 53.370 0 0 71,100 71,100 2034 Ô 3,000 53,370 0 0 0 2035 0 3.000 71,100 4.000 12,027 2,766 183,233 223,608 214 100 3,879,915

2,959

32,112

3,155,741

Total

2,915,785

# TABLE B-5A Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor (Acre-Feet) Sheet 5 of 1

Sheet 5 of 12

					,	Acre-Fee fornia Aque	duct (continu	ued)				Sheet 5 of 12
					South S	an Joaquin	Division (co	ntinued)				
			ch 9				Reac	h 10A				h 11B
Calendar Year	DRWD (47)	KCWA (M&I) (48)	KCWA (Ag) (49)	TLBWSD (50)	MWDSC (51)	KCWA (M&I) (52)	KCWA (Ag) (53)	SCVWD (54)	ACWD (55)	TLBWSD (56)	KCWA (M&I) (57)	KCWA (Ag) (58)
1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0	0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1966 1967 1968 1969 1970	0 0 0 0	0 0 0 0	0 0 30,951 24,489 46,114	0 0 0 0 1,855	0 0 0 0	0 0 0 0	0 0 0 0 158	0 0 0 0	0 0 0 0	0 0 0 2,842 4,315	0 0 0 0	0 0 24,776 64,682 72,279
1971 1972 1973 1974 1975	0 0 0 0	0 0 0 0	58,356 75,464 54,583 63,814 50,021	0 0 0 0	0 0 0 0	0 0 0 10,019 2,791	9,973 5,876 22,948 22,719 72,121	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	63,773 72,358 67,544 87,476 85,675
1976 1977 1978 1979 1980	0 0 0 0	0 0 0 0	53,465 24,668 72,231 74,524 79,946	0 0 0 0	0 0 0 0	74 201 0 285 3,780	50,444 34,451 161,889 153,245 131,836	0 0 0 0	0 0 0 0	0 0 0 0	3,981 0 484 3,112	85,067 29,603 88,753 108,379 103,207
1981 1982 1983 1984 1985	0 0 0 0	0 0 2,217 4,100 0	76,508 76,877 84,573 85,732 67,696	0 0 0 0	0 0 0 0	341 4,700 0 6,910 6,495	133,500 164,832 146,493 150,302 153,473	0 0 0 0	0 0 0 0	0 0 0 0	494 798 2,069 2,349 10,666	104,395 99,081 94,117 124,819 118,646
1986 1987 1988 1989 1990	0 0 0 0	0 0 1,100 0 0	79,943 97,732 83,858 91,134 83,108	0 0 0 0	0 0 0 0	5,065 900 8,229 21,038 25,189	198,099 226,521 213,795 251,979 47,472	0 0 0 0	0 0 0 0	0 0 0 0	8,673 13,074 13,509 9,986 9,319	124,836 111,877 114,031 127,058 104,107
1991 1992 1993 1994 1995	0 0 197 0 0	13,683 28 0 0	601 40,183 59,542 44,994 64,076	0 0 0 0	0 0 44,496 0 50,000	1,142 3,685 775 5,227 366	6,820 89,390 233,862 126,792 229,448	0 0 0 0	0 0 0 0	0 0 0 0	6,099 7,419 2,250 3,506 1,154	118 35,093 73,091 71,202 97,072
1996 1997 1998 1999 2000	0 0 0 0	0 0 0 0	91,527 146,110 146,110 146,110 146,110	0 0 0 0	95,000 75,000 75,000 0 43,500	6,666 500 500 500 500	199,854 240,900 240,900 240,900 240,900	45,000 40,000 0 0	6,200 0 0 0	0 0 0 0	1,185 2,000 2,000 2,000 2,000	96,250 130,665 130,665 130,665 130,665
2001 2002 2003 2004 2005	0 0 0 0	0 0 0 0	146,110 69,068 69,068 69,068 69,068	0 0 0 0	0 0 0 0	500 1,410 1,410 1,410 1,410	240,900 269,047 269,047 269,047 269,047	0 0 0 0	0 0 0 0	0 0 0 0	2,000 14,159 14,159 14,159 14,159	130,665 127,784 127,784 127,784 127,784
2006 2007 2008 2009 2010	0 0 0 0	0 0 0 0	69,068 69,068 69,068 69,068 69,068	0 0 0 0	0 0 0 0	1,410 1,410 1,410 1,410 1,410	269,047 269,047 269,047 269,047 269,047	0 0 0 0	0 0 0 0	0 0 0 0	14,159 14,159 14,159 14,159 14,159	127,784 127,784 127,784 127,784 127,784
2011 2012 2013 2014 2015	0 0 0 0	0 0 0 0	69,068 69,068 69,068 69,068	0 0 0 0	0 0 0 0	1,410 1,410 1,410 1,410 1,410	269,047 269,047 269,047 269,047 269,047	0 0 0 0	0 0 0 0	0 0 0 0	14,159 14,159 14,159 14,159 14,159	127,784 127,784 127,784 127,784 127,784
2016 2017 2018 2019 2020	0 0 0 0	0 0 0 0	69,068 69,068 69,068 69,068	0 0 0 0	0 0 0 0	1,410 1,410 1,410 1,410 1,410	269,047 269,047 269,047 269,047 269,047	0 0 0 0	0 0 0 0	0 0 0 0	14,159 14,159 14,159 14,159 14,159	127,784 127,784 127,784 127,784 127,784
2021 2022 2023 2024 2025	0 0 0 0	0 0 0 0	69,068 69,068 69,068 69,068	0 0 0 0	0 0 0 0	1,410 1,410 1,410 1,410 1,410	269,047 269,047 269,047 269,047 269,047	0 0 0 0	0 0 0 0	0 0 0 0	14,159 14,159 14,159 14,159 14,159	127,784 127,784 127,784 127,784 127,784
2026 2027 2028 2029 2030	0 0 0 0	0 0 0 0	69,068 69,068 69,068 69,068	0 0 0 0	0 0 0 0	1,410 1,410 1,410 1,410 1,410	269,047 269,047 269,047 269,047 269,047	0 0 0 0	0 0 0 0	0 0 0 0	14,159 14,159 14,159 14,159 14,159	127,784 127,784 127,784 127,784 127,784
2031 2032 2033 2034 2035	0 0 0 0	0 0 0 0	69,068 69,068 69,068 69,068	0 0 0 0	0 0 0 0	1,410 1,410 1,410 1,410 1,410	269,047 269,047 269,047 269,047 269,047	0 0 0 0	0 0 0 0	0 0 0 0	14,159 14,159 14,159 14,159 14,159	127,784 127,784 127,784 127,784 127,784
Total	197	21,128	4,915,572	1,855	382,996	164,318	13,590,390	85,000	6,200	7,157	591,533	7,447,346

TABLE B-5A
Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(Acre-Feet) Sheet 6 of 12

						e-Feet)					Sheet 6 of 12
-						Aqueduct (d		1			
		Reacl	12F		South San Jo	paquin Division Reach 13B	rı (continued)		h 14A	Poss	h 14B
Calendar Year	KCWA (M&I) (59)	KCWA (Ag) (60)	DRWD (61)	MWDSC (62)	KCWA (M&I) (63)	TLBWSD (64)	KCWA (Ag) (65)	KCWA (M&I) (66)	KCWA (Ag) (67)	KCWA (M&I) (68)	KCWA (Ag) (69)
1962 1963 1964 1965	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0000	0 0 0	0000	0 0 0	0 0 0
1966 1967 1968 1969 1970	0 0 0 0	0 0 0 0 9,279	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0 4,891	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0 3
1971 1972 1973 1974 1975	0 0 0 2,651 0	28,056 62,342 13,082 4,248 10,787	0 0 0 0	0 0 0 0	0 0 0 8,038 8,538	0 0 0 0	0 17,388 9,297 4,246 7,059	0 0 0 0	23,844 26,621 15,328 7,794 10,306	0 0 0 0	49,929 77,034 47,040 32,356 27,736
1976 1977 1978 1979 1980	37,519 20,280 47,133 50,740 32,039	20,555 1,737 15,011 61,567 22,252	0 0 0 0	0 0 0 0	5,626 0 21,773 5,663 0	0 0 0 0	8,855 5,024 7,601 17,766 22,515	0 0 0 3,012 4,312	268 8,299 34,029 27,356 16,876	0 0 0 0	35,296 13,539 72,351 59,413 40,513
1981 1982 1983 1984 1985	59,917 36,139 0 63,941 69,839	58,470 75,587 10,950 39,929 84,117	0 0 0 0	0 0 0 0	7,844 0 0 12,117 0	0 0 0 0	14,037 25,553 3,491 26,178 67,711	4,511 5,373 1,168 137 206	13,007 22,602 20,302 35,369 33,103	8 184 0 10	42,753 57,739 57,922 79,179 72,855
1986 1987 1988 1989 1990	62,109 95,297 86,390 83,965 82,164	51,540 86,223 123,249 146,544 38,973	0 0 0 0	0 0 0 0	0 5,609 9,298 5,504 7,645	0 0 0 0	66,551 40,374 47,167 57,114 20,423	180 610 604 721 673	26,384 30,098 32,796 29,292 26,800	0 9 4 7 13	70,864 67,710 75,983 82,201 81,076
1991 1992 1993 1994 1995	8,842 47,181 84,822 66,188 107,130	303 57,048 285,554 77,839 181,097	0 0 0 0 1,000	0 0 5,504 0 0	0 789 12,798 2,494 8,751	0 0 0 0 3,500	0 17,449 88,157 33,148 110,685	768 673 629 2,513 3	0 16,238 17,832 16,760 21,234	0 464 0 3,000	0 41,143 62,493 54,011 67,391
1996 1997 1998 1999 2000	91,858 103,100 103,100 103,100 103,100	131,537 109,655 109,655 109,655 109,655	4,131 0 0 0 0	0 0 0 0	28,063 12,000 12,000 12,000 12,000	0 0 0 0	64,849 41,800 41,800 41,800 41,800	0 0 0 0	26,978 28,400 28,400 28,400 28,400	0 0 0 0	85,936 82,700 82,700 82,700 82,700
2001 2002 2003 2004 2005	103,100 84,135 84,135 84,135 84,135	109,655 187,839 187,839 187,839 187,839	0 0 0 0	0 0 0 0	12,000 22,826 22,826 22,826 22,826	0 0 0 0	41,800 50,164 50,164 50,164 50,164	0 752 752 752 752	28,400 20,064 20,064 20,064 20,064	0 0 0 0	82,700 58,180 58,180 58,180 58,180
2006 2007 2008 2009 2010	84,135 84,135 84,135 84,135 84,135	187,839 187,839 187,839 187,839 187,839	0 0 0 0	0 0 0 0	22,826 22,826 22,826 22,826 22,826	0 0 0 0	50,164 50,164 50,164 50,164 50,164	752 752 752 752 752 752	20,064 20,064 20,064 20,064 20,064	0 0 0 0	58,180 58,180 58,180 58,180 58,180
2011 2012 2013 2014 2015	84,135 84,135 84,135 84,135 84,135	187,839 187,839 187,839 187,839 187,839	0 0 0 0	0 0 0 0	22,826 22,826 22,826 22,826 22,826	0 0 0 0	50,164 50,164 50,164 50,164 50,164	752 752 752 752 752 752	20,064 20,064 20,064 20,064 20,064	0 0 0 0	58,180 58,180 58,180 58,180 58,180
2016 2017 2018 2019 2020	84,135 84,135 84,135 84,135 84,135	187,839 187,839 187,839 187,839 187,839	0 0 0 0	0 0 0 0	22,826 22,826 22,826 22,826 22,826	0 0 0 0	50,164 50,164 50,164 50,164 50,164	752 752 752 752 752 752	20,064 20,064 20,064 20,064 20,064	0 0 0 0	58,180 58,180 58,180 58,180 58,180
2021 2022 2023 2024 2025	84,135 84,135 84,135 84,135 84,135	187,839 187,839 187,839 187,839 187,839	0 0 0 0	0 0 0 0	22,826 22,826 22,826 22,826 22,826	0 0 0 0	50,164 50,164 50,164 50,164 50,164	752 752 752 752 752 752	20,064 20,064 20,064 20,064 20,064	0 0 0 0	58,180 58,180 58,180 58,180 58,180
2026 2027 2028 2029 2030	84,135 84,135 84,135 84,135 84,135	187,839 187,839 187,839 187,839 187,839	0 0 0 0	0 0 0 0	22,826 22,826 22,826 22,826 22,826	0 0 0 0	50,164 50,164 50,164 50,164 50,164	752 752 752 752 752 752	20,064 20,064 20,064 20,064 20,064	0 0 0 0	58,180 58,180 58,180 58,180 58,180
2031 2032 2033 2034 2035	84,135 84,135 84,135 84,135 84,135	187,839 187,839 187,839 187,839 187,839	0 0 0 0	0 0 0 0 0	22,826 22,826 22,826 22,826 22,826	0 0 0 0	50,164 50,164 50,164 50,164 50,164	752 752 752 752 752 752	20,064 20,064 20,064 20,064 20,064	0 0 0 0	58,180 58,180 58,180 58,180 58,180
Total	4,612,234	8,632,677	5,131	5,504	986,634	3,500	2,702,105	51,661	1,363,692	3,699	3,846,086

# TABLE B-5A Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor (Acre-Feet) Sheet 7 of 12

				•	e-Feet) ia Aqueduct (cor	ntinued)			Sheet 7 of 12
			South San J	oaquin Division	, ,			Mojave	Division
	Reach	14C	Reach	15A		Reach 16A		Reach 18A	Reach 19
Calendar Year	KCWA (M&I) (70)	KCWA (Ag) (71)	KCWA (M&I) (72)	KCWA (Ag) (73)	KCWA (M&I) (74)	KCWA (Ag) (75)	AVEKWA (76)	AVEKWA (77)	AVEKWA (78)
1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1966 1967 1968 1969 1970	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1971 1972 1973 1974 1975	0 0 0 0	24,187 35,016 19,043 12,601 12,783	0 0 0 0	3,552 6,064 19,916 18,000 35,420	0 0 0 3,000 3,200	0 4,768 1,961 1,564 9,867	0 0 0 0	0 0 0 0	0 0 0 1,223 7,622
1976 1977 1978 1979 1980	0 0 0 0	9,005 3,757 24,542 22,372 19,953	0 0 0 0	39,551 6,158 31,148 38,602 37,817	3,500 3,420 7,989 2,813 2,700	11,667 685 1,655 15,808 16,145	0 0 0 0	3,808 1,231 1,321 2,098 2,610	23,063 8,927 36,333 49,910 61,534
1981 1982 1983 1984 1985	7 0 0 2 0	18,729 26,479 26,613 34,996 31,758	0 0 0 0	39,033 47,782 37,426 49,848 44,078	2,636 1,289 1,400 1,338 1,309	18,156 17,209 17,907 24,202 16,820	0 0 0 0	2,340 1,669 43 90 8	65,690 41,127 26,377 22,462 23,440
1986 1987 1988 1989 1990	0 9 0 5 9	34,566 31,019 37,166 37,800 34,174	0 0 2 2 2 6	42,461 34,748 41,992 43,239 36,347	1,213 1,665 1,913 2,668 2,819	15,559 10,170 8,999 8,649 8,608	0 0 0 0	8 0 0 0	16,898 15,958 13,471 18,007 17,281
1991 1992 1993 1994 1995	0 0 0 1,000 0	0 18,084 28,103 22,624 31,285	0 0 0 0	0 24,243 27,997 29,511 26,134	2,588 2,087 2,494 3,011 3,188	343 8,275 9,167 13,877 15,042	2,000 0 0 0	0 0 0 0	728 7,238 13,340 19,122 20,222
1996 1997 1998 1999 2000	0 0 0 0	38,879 38,000 38,000 38,000 38,000	0 0 0 0	36,186 40,700 40,700 40,700 40,700	2,573 4,000 4,000 4,000 4,000	18,142 18,200 18,200 18,200 18,200	0 0 0 0	0 0 0 0	23,919 23,252 25,753 26,285 26,852
2001 2002 2003 2004 2005	0 0 0 0	38,000 29,664 29,664 29,664 29,664	0 0 0 0	40,700 37,826 37,826 37,826 37,826	4,000 3,678 3,678 3,678 3,678	18,200 18,049 18,049 18,049 18,049	0 0 0 0	0 144 144 144 144	27,456 91,877 91,877 91,877 91,877
2006 2007 2008 2009 2010	0 0 0 0	29,664 29,664 29,664 29,664 29,664	0 0 0 0	37,826 37,826 37,826 37,826 37,826	3,678 3,678 3,678 3,678 3,678	18,049 18,049 18,049 18,049	0 0 0 0	144 144 144 144	91,877 91,877 91,877 91,877 91,877
2011 2012 2013 2014 2015	0 0 0 0	29,664 29,664 29,664 29,664 29,664	0 0 0 0	37,826 37,826 37,826 37,826 37,826	3,678 3,678 3,678 3,678 3,678	18,049 18,049 18,049 18,049 18,049	0 0 0 0	144 144 144 144	91,877 91,877 91,877 91,877 91,877
2016 2017 2018 2019 2020	0 0 0 0	29,664 29,664 29,664 29,664 29,664	0 0 0 0	37,826 37,826 37,826 37,826 37,826	3,678 3,678 3,678 3,678 3,678	18,049 18,049 18,049 18,049 18,049	0 0 0 0	144 144 144 144	91,877 91,877 91,877 91,877 91,877
2021 2022 2023 2024 2025	0 0 0 0	29,664 29,664 29,664 29,664 29,664	0 0 0 0	37,826 37,826 37,826 37,826 37,826	3,678 3,678 3,678 3,678 3,678	18,049 18,049 18,049 18,049	0 0 0 0	144 144 144 144	91,877 91,877 91,877 91,877 91,877
2026 2027 2028 2029 2030	0 0 0 0	29,664 29,664 29,664 29,664 29,664	0 0 0 0	37,826 37,826 37,826 37,826 37,826	3,678 3,678 3,678 3,678 3,678	18,049 18,049 18,049 18,049 18,049	0 0 0 0	144 144 144 144	91,877 91,877 91,877 91,877 91,877
2031 2032 2033 2034 2035	0 0 0 0	29,664 29,664 29,664 29,664 29,664	0 0 0 0	37,826 37,826 37,826 37,826 37,826	3,678 3,678 3,678 3,678 3,678	18,049 18,049 18,049 18,049 18,049	0 0 0 0	144 144 144 144 144	91,877 91,877 91,877 91,877 91,877
Total	1,032	1,834,110	10	2,286,837	205,865	979,911	2,000	20,122	3,787,308

#### TABLE B-5A

### Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(Acre-Feet) Sheet 8 of 12

				Californ	ia Aqueduct (coi	ntinued)			
					e Division (conti			T	
		Reach 20A		Reac		Reaci		Reach 22A	Reach 22B
Calendar Year	PWD (79)	MWA (80)	AVEKWA (81)	PWD (82)	AVEKWA (83)	LCID (84)	PWD (85)	AVEKWA (86)	MWDSC (d (87)
1962 1963	0	0	0	0	0	0	0	0	0
1964 1965	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0
1967 1968	0 0	0	0	0	0	0 0	0 0	0	0
1969 1970	0 0	0 0	0	0 0	0 0	0 0	0 0	0 0	0
1971 1972	0	0	0	0	0	0 338	0	0	0
1973 1974	0	0	0	0	0	290 400	0	0	(14,800) (16,400)
1975	0	0	420	0	ő	520	ő	0	(18,000)
1976 1977	0 0	0	471 773	0 0	416 271	589 111	0 0	0	(19,600) 0
1978 1979	0	0	5,549 7,555	0	934 930	208 133	0	0	(25,384) (25,063)
1980 1981	0	0	7,605 10,333	0	655 966	191 1,270	0	3 46	(27,884)
1982 1983	0	0	7,313 6,253	0	900 8 20	0 38	0	174 268	(31,105) (34,326) (37,547)
1984 1985	0 1,510	0	9,558 11,613	0 32	2 2 217	1 0	0 16	550 1,786	(40,768) (43,989)
1986	3,041	0	13,808	45	0	163	10	1,735	(47,210)
1987 1988	2,389 366	0	15,493 17,117	1,624 1,261	151 281	1,080 419	1,366 143	2,278 3,210	(50,931) (54,652)
1989 1990	381 282	0 0	23,481 25,843	7,848 8,292	112 84	971 1,747	780 34	3,591 3,988	(58,373) (61,200)
1991 1992	84 185	1,391 1,310	4,282 18,518	3,830 3,850	131 650	522 251	0	2,427 3,859	(18,360) (27,624)
1993 1994	164 299	1,514 1,399	23,662 25,250	7,597 8,119	996 124	734 1,098	0	5,098 4,657	0 0
1995	328	1,227	22,385	6,633	0	480	0	4,679	ő
1996 1997	330 0	1,316 1,500	26,899 31,562	11,080 17,300	0 1,252	494 2,300	0 0	5,458 4,891	0
1998 1999	0 0	1,500 1,500	33,605 35,782	17,300 17,300	1,252 1,333	2,290 2,300	0 0	77,790 75,000	0
2000	0	1,500	38,102	17,300	1,418	2,300	0	72,028	0
2001 2002 2003	0	1,500 0 0	40,571 38,379 38,379	17,300 17,300 17,300	1,511 2,355 2,355	2,300 2,300 2,300	0	68,862 5,645 5,645	0
2004 2005	0	0	38,379 38,379	17,300 17,300 17,300	2,355 2,355 2,355	2,300 2,300 2,300	0	5,645 5,645	0
2006	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2007 2008	0	0	38,379 38,379	17,300 17,300	2,355 2,355	2,300 2,300	0	5,645 5,645	0 0
2009 2010	0 0	0 0	38,379 38,379	17,300 17,300	2,355 2,355	2,300 2,300	0 0	5,645 5,645	0
2011 2012	0	0	38,379	17,300 17,300	2,355 2,355	2,300 2,300	0	5,645	0
2012 2013 2014	0	0	38,379 38,379 38,379	17,300 17,300 17,300	2,355 2,355 2,355	2,300 2,300 2,300	0	5,645 5,645 5,645	0
2015	Ö	Ö	38,379	17,300	2,355	2,300	ő	5,645	ő
2016 2017	0	0	38,379 38,379	17,300 17,300	2,355 2,355	2,300 2,300	0 0	5,645 5,645	0
2018 2019	0 0	0 0	38,379 38,379	17,300 17,300	2,355 2,355	2,300 2,300	0 0	5,645 5,645	0
2020	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2021 2022 2023	0 0 0	0 0 0	38,379 38,379 38,379	17,300 17,300 17,300	2,355 2,355 2,355	2,300 2,300 2,300	0 0 0	5,645 5,645 5,645	0 0 0
2024 2025	0	0	38,379 38,379	17,300 17,300 17,300	2,355 2,355 2,355	2,300 2,300 2,300	0	5,645 5,645	0
2026	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2027 2028	0	0	38,379 38,379	17,300 17,300	2,355 2,355	2,300 2,300	0	5,645 5,645	0
2029 2030	0 0	0	38,379 38,379	17,300 17,300	2,355 2,355	2,300 2,300	0 0	5,645 5,645	0
2031	0	0	38,379	17,300	2,355	2,300	0	5,645	0
2032 2033	0	0	38,379 38,379	17,300 17,300	2,355 2,355	2,300 2,300	0	5,645 5,645	0
2034 2035	0	0	38,379 38,379	17,300 17,300	2,355 2,355	2,300 2,300	0	5,645 5,645	0
Total	9,359	15,657	1,768,689	734,911	93,784	101,738	2,349	534,308	(653,216)

d) In accordance with the Exchange Agreement between the noted agencies, MWDSC assumed responsibility for payment of variable OMP&R costs on the exchange water in reaches beyond Reach 22B, and Desert Water Agency and Coachella Valley Water District for such costs from the Delta through Reach 22B.

The adjustment in deliveries in Reach 22B provides for compliance with provisions for the repayment of costs under the agreement. In 1993 and after the exchange takes place in Reach 26A.

TABLE B-5A Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

				(Acre-Fee	t) duct (continued)			Sheet 9 of 12
†				<u>, , , , , , , , , , , , , , , , , , , </u>				Santa Ana
+		Reach		ve Division (conti	nued) Reach 23	Reac	h 24	Division Reach 26A
Calendar Year	CVWD (d (88)	AVEKWA (e (89)	DWA (d (90)	MWA (91)	MWA (92)	CLAWA (93)	MWA (94)	MWDSC (f (95)
1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1966 1967 1968 1969 1970	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0 0
1971 1972 1973 1974 1975	0 0 5,800 6,400 7,000	0 0 0 0	0 0 9,000 10,000 11,000	0 55 0 0	0 0 0 14 0	0 464 389 627 825	0 0 0 0	0 0 444 84,981 169,960
1976 1977 1978 1979 1980	7,600 0 10,084 10,063 10,884	0 0 0 0	12,000 0 15,300 15,000 17,000	0 22 0 4,000 4,000	0 58 0 0	1,002 1,109 1,209 1,260 1,239	0 0 0 0	215,312 64,823 297,708 260,903 300,345
1981 1982 1983 1984 1985	12,105 13,326 14,547 15,768 16,989	0 0 0 0	19,000 21,000 23,000 25,000 27,000	4,000 10,500 0 0	0 0 0 0	1,485 1,238 911 1,128 1,422	0 0 0 0	395,678 214,566 175,288 122,311 147,599
1986 1987 1988 1989 1990	18,210 19,431 20,652 21,873 23,100	0 214 0 89 10	29,000 31,500 34,000 36,500 38,100	0 17 9 0	0 0 0 200 0	1,506 1,849 2,006 2,170 1,827	0 0 0 0	215,265 175,012 247,101 326,217 399,387
1991 1992 1993 1994 1995	6,930 10,427 0 0	0 0 0 0	11,430 17,197 0 0	0 42 0 14,634 7,495	0 0 0 0	849 519 439 785 409	2,032 9,334 10,000 819 0	107,182 219,524 96,121 192,979 108,758
1996 1997 1998 1999 2000	0 0 0 0	0 0 0 0	0 0 0 0	6,111 13,100 18,499 28,500 63,483	0 0 0 0 0	485 1,950 1,950 1,950 1,950	0 0 0 0	113,840 291,291 331,791 481,236 457,105
2001 2002 2003 2004 2005	0 0 0 0	0 0 0 0	0 0 0 0	68,500 25,000 25,000 25,000 25,000	0 0 0 0 0	1,950 5,800 5,800 5,800 5,800	0 50,800 50,800 50,800 50,800	474,568 471,890 471,890 471,890 471,890
2006 2007 2008 2009 2010	0 0 0 0	0 0 0 0	0 0 0 0	25,000 25,000 25,000 25,000 25,000	0 0 0 0 0	5,800 5,800 5,800 5,800 5,800	50,800 50,800 50,800 50,800 50,800	471,890 471,890 471,890 471,890 471,890
2011 2012 2013 2014 2015	0 0 0 0	0 0 0 0	0 0 0 0	25,000 25,000 25,000 25,000 25,000	0 0 0 0	5,800 5,800 5,800 5,800 5,800	50,800 50,800 50,800 50,800 50,800	471,890 471,890 471,890 471,890 471,890
2016 2017 2018 2019 2020	0 0 0 0	0 0 0 0	0 0 0 0	25,000 25,000 25,000 25,000 25,000	0 0 0 0	5,800 5,800 5,800 5,800 5,800	50,800 50,800 50,800 50,800 50,800	471,890 471,890 471,890 471,890 471,890
2021 2022 2023 2024 2025	0 0 0 0	0 0 0 0	0 0 0 0	25,000 25,000 25,000 25,000 25,000	0 0 0 0	5,800 5,800 5,800 5,800 5,800	50,800 50,800 50,800 50,800 50,800	471,890 471,890 471,890 471,890 471,890
2026 2027 2028 2029 2030	0 0 0 0	0 0 0 0	0 0 0 0	25,000 25,000 25,000 25,000 25,000	0 0 0 0	5,800 5,800 5,800 5,800 5,800	50,800 50,800 50,800 50,800 50,800	471,890 471,890 471,890 471,890 471,890
2031 2032 2033 2034 2035	0 0 0 0	0 0 0 0	0 0 0 0	25,000 25,000 25,000 25,000 25,000	0 0 0 0	5,800 5,800 5,800 5,800 5,800	50,800 50,800 50,800 50,800 50,800	471,890 471,890 471,890 471,890 471,890
Total	251,189	313	402,027	1,092,967	272	234,102	1,749,385	22,731,555

e) 1988 advance entitlement.
f) In accordance with the Exchange Agreement between the noted agencies, MWDSC assumed responsibility for payment of variable OMP&R costs on the exchange water in reaches beyond Reach 22B, and Desert Water Agency and Coachella Valley Water District for such costs from the Delta through Reach 22B. The adjustment in deliveries in Reach 22B provides for compliance with provisions for the repayment of costs under the agreement. In 1993 and after the exchange takes place in Reach 26A.

TABLE B-5A

Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(Acre-Feet) Sheet 10 of 12

					Са	lifornia Aqued	•	ied)				Sheet 10 of 12
						Santa Ana	a Division					
			Reach 26A			Reach 28G		Reach 28H			Reach 28J	
Calendar Year	SBVMWD (g (96)	SGVMWD (97)	SGPWA (98)	CVWD (f (99)	DWA (f (100)	MWDSC (101)	CVWD (102)	DWA (103)	MWDSC (104)	CVWD (105)	DWA (106)	MWDSC (107)
1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1966 1967 1968 1969 1970	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1971 1972 1973 1974 1975	0 1,275 32,426 16,605 13,865	0 0 0 612 5,450	0 0 0 0	0 0 0 0	0 0 0 0	0 0 18,942 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0 251
1976 1977 1978 1979 1980	12,273 24,833 4,055 18 0	6,071 8,996 7,771 290 1,085	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	55 43 48 1,290 3,013	0 0 0 0	0 0 0 0	2,000 2,442 64,054 94,353 91,532
1981 1982 1983 1984 1985	16,021 8,409 5,994 5,556 7,390	3,619 12,599 734 7,656 5,028	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	4,365 3,961 6,645 109,743 182,781	0 0 0 0	0 0 0 0	149,405 155,629 41,616 5,672 6,538
1986 1987 1988 1989 1990	6,421 8,751 12,637 20,782 18,831	9,454 10,630 8,948 12,839 16,649	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	131,439 144,743 199,641 247,430 257,796	0 0 0 0	0 0 0 0	30,071 26,315 22,209 51,462 36,060
1991 1992 1993 1994 1995	3,661 3,358 4,361 9,135 696	5,399 7,908 14,397 15,230 12,922	0 0 0 0	0 0 23,100 14,102 23,100	0 0 38,100 23,257 38,100	0 0 0 0	0 0 0 0	0 0 0 0	38,832 85,341 63,887 134,262 116,672	0 0 0 0	0 0 0 0	5,958 12,223 4,712 4,725 20,730
1996 1997 1998 1999 2000	6,064 25,000 41,000 50,000 56,000	15,989 28,800 28,800 28,800 28,800	0 0 0 4,200 5,000	48,241 23,100 23,100 23,100 23,100	79,566 38,100 38,100 38,100 38,100	0 0 0 0	13,328 0 0 0 0	21,984 0 0 0 0	107,896 202,246 248,160 328,326 369,759	650 0 0 0 0	1,072 0 0 0 0	9,026 204,149 204,149 131,368 235,936
2001 2002 2003 2004 2005	60,000 102,600 102,600 102,600 102,600	28,800 28,800 28,800 28,800 28,800	5,000 5,000 6,000 6,500 7,000	23,100 23,100 23,100 23,100 23,100	38,100 38,100 38,100 38,100 38,100	0 0 0 0	0 0 0 0	0 0 0 0	400,518 396,905 396,905 396,905 396,905	0 0 0 0	0 0 0 0	204,149 34,800 34,800 34,800 34,800
2006 2007 2008 2009 2010	102,600 102,600 102,600 102,600 102,600	28,800 28,800 28,800 28,800 28,800	7,500 17,300 17,300 17,300 17,300	23,100 23,100 23,100 23,100 23,100	38,100 38,100 38,100 38,100 38,100	0 0 0 0	0 0 0 0	0 0 0 0	396,905 396,905 396,905 396,905 396,905	0 0 0 0	0 0 0 0	34,800 34,800 34,800 34,800 34,800
2011 2012 2013 2014 2015	102,600 102,600 102,600 102,600 102,600	28,800 28,800 28,800 28,800 28,800	17,300 17,300 17,300 17,300 17,300	23,100 23,100 23,100 23,100 23,100	38,100 38,100 38,100 38,100 38,100	0 0 0 0	0 0 0 0	0 0 0 0	396,905 396,905 396,905 396,905 396,905	0 0 0 0	0 0 0 0	34,800 34,800 34,800 34,800 34,800
2016 2017 2018 2019 2020	102,600 102,600 102,600 102,600 102,600	28,800 28,800 28,800 28,800 28,800	17,300 17,300 17,300 17,300 17,300	23,100 23,100 23,100 23,100 23,100	38,100 38,100 38,100 38,100 38,100	0 0 0 0	0 0 0 0	0 0 0 0	396,905 396,905 396,905 396,905 396,905	0 0 0 0	0 0 0 0	34,800 34,800 34,800 34,800 34,800
2021 2022 2023 2024 2025	102,600 102,600 102,600 102,600 102,600	28,800 28,800 28,800 28,800 28,800	17,300 17,300 17,300 17,300 17,300	23,100 23,100 23,100 23,100 23,100	38,100 38,100 38,100 38,100 38,100	0 0 0 0	0 0 0 0	0 0 0 0	396,905 396,905 396,905 396,905 396,905	0 0 0 0	0 0 0 0	34,800 34,800 34,800 34,800 34,800
2026 2027 2028 2029 2030	102,600 102,600 102,600 102,600 102,600	28,800 28,800 28,800 28,800 28,800	17,300 17,300 17,300 17,300 17,300	23,100 23,100 23,100 23,100 23,100	38,100 38,100 38,100 38,100 38,100	0 0 0 0	0 0 0 0	0 0 0 0	396,905 396,905 396,905 396,905 396,905	0 0 0 0	0 0 0 0	34,800 34,800 34,800 34,800 34,800
2031 2032 2033 2034 2035	102,600 102,600 102,600 102,600 102,600	28,800 28,800 28,800 28,800 28,800	17,300 17,300 17,300 17,300 17,300	23,100 23,100 23,100 23,100 23,100	38,100 38,100 38,100 38,100 38,100	0 0 0 0	0 0 0 0	0 0 0 0	396,905 396,905 396,905 396,905 396,905	0 0 0 0	0 0 0 0	34,800 34,800 34,800 34,800 34,800
Total	3,963,817	1,313,476	547,900	1,009,443	1,664,923	18,942	13,328	21,984	16,883,662	650	1,072	2,999,934

g) Includes 1,650 AF recaptured from groundwater storage in 1982, 10,000 AF in 1987, and 8,749 AF in 1988. This water was stored under DWR's Groundwater Demonstration Program.

#### TABLE B-5A

## Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor

(Acre-Feet)

Sheet 11 of 12

				California Aquedi	<u></u>			Sheet 11 of 12
			West B	ranch			Coastal	Branch
	Reach 29F	Reach 29H		Reach			Reach	
Calendar Year	AVEKWA (108)	VCFCD (109)	MWDSC (h (110)	VCFCD (111)	CLWA (112)	SBCFC&WCD (113)	KCWA (M&I) (114)	KCWA (Ag) (115)
1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0
1966 1967 1968 1969 1970	0 0 0 0	0 0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 71,657 52,094 71,910
1971 1972 1973 1974 1975	0 53 20 36 26	0 0 0 0 0	0 71,938 155,297 209,136 374,280	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	98,481 107,850 69,227 68,474 74,516
1976 1977 1978 1979 1980	24 0 0 0 0	0 0 0 0 0	420,684 122,447 171,139 145,591 164,721	0 0 0 0	0 0 0 7 1,210	0 0 0 0	0 0 0 0	78,358 35,504 81,242 104,017 97,497
1981 1982 1983 1984 1985	0 0 0 0	0 0 0 0 0	277,503 351,362 157,519 260,624 390,696	0 0 0 0	5,761 9,516 9,476 11,477 12,401	0 0 0 0	0 0 0 0	97,054 83,076 87,859 119,098 110,124
1986 1987 1988 1989	0 0 0 0	0 0 0 0 4,836	379,275 417,285 488,265 589,962 764,380	0 0 0 0	13,928 16,167 18,904 21,719 22,139	0 0 0 0	0 0 0 0	118,298 116,259 109,435 102,156 103,362
1991 1992 1993 1994 1995	0 0 6 0	988 0 0 0	257,835 420,849 437,470 475,900 139,882	0 0 0 0	3,846 14,812 13,787 14,919 17,747	1,240 0 0 0 0	0 0 0 200 0	780 73,748 90,764 77,536 85,050
1996 1997 1998 1999 2000	0 0 0 0	5,000 5,000 5,000 5,000 5,000	267,618 271,414 310,900 518,270 428,500	0 5,000 5,000 5,000 5,000	19,704 34,635 23,100 25,410 27,949	0 0 0 0	3,200 0 0 0 0	97,378 89,000 89,000 89,000 89,000
2001 2002 2003 2004 2005	0 0 0 0	5,000 5,000 5,000 5,000 5,000	354,865 1,107,905 1,107,905 1,107,905 1,107,905	5,000 15,000 15,000 15,000 15,000	30,747 41,500 41,500 41,500 41,500	0 0 0 0	0 7,640 7,640 7,640 7,640	89,000 85,445 85,445 85,445 85,445
2006 2007 2008 2009 2010	0 0 0 0	5,000 5,000 5,000 5,000 5,000	1,107,905 1,107,905 1,107,905 1,107,905 1,107,905	15,000 15,000 15,000 15,000 15,000	41,500 41,500 41,500 41,500 41,500	0 0 0 0	7,640 7,640 7,640 7,640 7,640	85,445 85,445 85,445 85,445 85,445
2011 2012 2013 2014 2015	0 0 0 0	5,000 5,000 5,000 5,000 5,000	1,107,905 1,107,905 1,107,905 1,107,905 1,107,905	15,000 15,000 15,000 15,000 15,000	41,500 41,500 41,500 41,500 41,500	0 0 0 0	7,640 7,640 7,640 7,640 7,640	85,445 85,445 85,445 85,445 85,445
2016 2017 2018 2019 2020	0 0 0 0	5,000 5,000 5,000 5,000 5,000	1,107,905 1,107,905 1,107,905 1,107,905 1,107,905	15,000 15,000 15,000 15,000 15,000	41,500 41,500 41,500 41,500 41,500	0 0 0 0	7,640 7,640 7,640 7,640 7,640	85,445 85,445 85,445 85,445 85,445
2021 2022 2023 2024 2025	0 0 0 0	5,000 5,000 5,000 5,000 5,000	1,107,905 1,107,905 1,107,905 1,107,905 1,107,905	15,000 15,000 15,000 15,000 15,000	41,500 41,500 41,500 41,500 41,500	0 0 0 0	7,640 7,640 7,640 7,640 7,640	85,445 85,445 85,445 85,445 85,445
2026 2027 2028 2029 2030	0 0 0 0	5,000 5,000 5,000 5,000 5,000	1,107,905 1,107,905 1,107,905 1,107,905 1,107,905	15,000 15,000 15,000 15,000 15,000	41,500 41,500 41,500 41,500 41,500	0 0 0 0	7,640 7,640 7,640 7,640 7,640	85,445 85,445 85,445 85,445 85,445
2031 2032 2033 2034 2035	0 0 0 0 0	5,000 5,000 5,000 5,000 5,000	1,107,905 1,107,905 1,107,905 1,107,905 1,107,905	15,000 15,000 15,000 15,000 15,000	41,500 41,500 41,500 41,500 41,500	0 0 0 0	7,640 7,640 7,640 7,640 7,640	85,445 85,445 85,445 85,445 85,445
Total	165	200,824	47,464,377	535,000	1,780,361	1,240	263,160	5,832,934

h) Deliveries exclude 6,171 AF of 1982 exchange water.

TABLE B-5A

## Annual Water Quantities Delivered from Each Aqueduct Reach to Each Contractor (Acre-Feet) Sheet 12 of 12

		Califo	rnia Aqueduct (cont	cre-Feet) inued)			Sheet 12 of 12
-			nstal Branch (continu	•			
-	Reach 31A	Reach 33A	Reach 34	Read	ch 35		
Calendar Year	CLWA (116)	SLOCFC&WCD (117)	SLOCFC&WCD (118)	SLOCFC&WCD (119)	SBCFC&WCD (120)	Total (121)	Grand Total (122)
1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	8,906 12,645 20,911 34,026
1966 1967 1968 1969 1970	0 0 7,382 9,970 11,739	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 192,188 195,705 276,211	54,913 56,763 294,457 268,104 369,459
1971 1972 1973 1974 1975	12,490 13,905 9,418 9,700 10,700	0 0 0 0	0 0 0 0	0 0 0 0 0	0 0 0 0	553,081 895,006 638,930 783,984 1,129,728	654,250 1,037,584 737,479 878,820 1,230,577
1976 1977 1978 1979 1980	11,700 5,075 11,362 19,138 13,882	0 0 0 0	0 0 0 0	0 0 0 0 0	0 0 0 0	1,245,662 465,442 1,339,268 1,537,075 1,407,163	1,379,597 581,675 1,458,154 1,666,155 1,529,989
1981 1982 1983 1984 1985	12,700 12,700 12,659 12,741 12,099	0 0 0 0	0 0 0 0	0 0 0 0 0	0 0 0 0	1,779,479 1,641,571 1,089,626 1,489,770 1,863,544	1,918,342 1,749,789 1,186,831 1,591,087 1,989,925
1986 1987 1988 1989 1990	13,301 11,821 11,534 14,645 6,440	0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0	1,882,290 1,974,569 2,213,089 2,686,838 2,398,121	1,998,514 2,121,060 2,375,984 2,853,044 2,581,277
1991 1992 1993 1994 1995	716 5,887 4,157 9,422 9,486	0 0 0 0	0 0 0 0 0	0 0 0 0	0 0 0 0	489,489 1,374,775 2,163,309 1,727,504 1,926,835	548,520 1,470,695 2,304,190 1,866,346 2,030,310
1996 1997 1998 1999 2000	14,052 16,000 16,000 16,000 16,000	0 2,209 2,209 2,209 2,209	0 2,305 2,154 2,159 2,163	0 1,371 1,450 1,503 1,560	0 38,986 38,986 45,486 45,486	2,431,080 2,674,013 2,847,138 3,168,417 3,288,400	2,543,522 2,858,245 3,062,613 3,400,412 3,522,660
2001 2002 2003 2004 2005	16,000 12,700 12,700 12,700 12,700	2,209 12,628 12,628 12,628 12,628	2,163 12,372 12,372 12,372 12,372 12,372	1,617 0 0 0 0	45,486 45,486 45,486 45,486 45,486	3,199,572 3,865,686 3,866,686 3,867,186 3,867,686	3,434,662 4,110,041 4,112,176 4,113,786 4,115,019
2006 2007 2008 2009 2010	12,700 12,700 12,700 12,700 12,700	12,628 12,628 12,628 12,628 12,628	12,372 12,372 12,372 12,372 12,372 12,372	0 0 0 0	45,486 45,486 45,486 45,486 45,486	3,868,186 3,877,986 3,877,986 3,877,986 3,877,986	4,116,066 4,126,536 4,127,306 4,127,976 4,128,646
2011 2012 2013 2014 2015	12,700 12,700 12,700 12,700 12,700	12,628 12,628 12,628 12,628 12,628	12,372 12,372 12,372 12,372 12,372 12,372	0 0 0 0	45,486 45,486 45,486 45,486 45,486	3,877,986 3,877,986 3,877,986 3,877,986 3,877,986	4,129,426 4,130,106 4,130,896 4,131,686 4,132,486
2016 2017 2018 2019 2020	12,700 12,700 12,700 12,700 12,700	12,628 12,628 12,628 12,628 12,628	12,372 12,372 12,372 12,372 12,372 12,372	0 0 0 0 0	45,486 45,486 45,486 45,486 45,486	3,877,986 3,877,986 3,877,986 3,877,986 3,877,986	4,133,186 4,133,786 4,134,386 4,134,986 4,135,586
2021 2022 2023 2024 2025	12,700 12,700 12,700 12,700 12,700	12,628 12,628 12,628 12,628 12,628	12,372 12,372 12,372 12,372 12,372 12,372	0 0 0 0 0	45,486 45,486 45,486 45,486 45,486	3,877,986 3,877,986 3,877,986 3,877,986 3,877,986	4,135,686 4,135,686 4,135,686 4,135,686 4,135,686
2026 2027 2028 2029 2030	12,700 12,700 12,700 12,700 12,700	12,628 12,628 12,628 12,628 12,628	12,372 12,372 12,372 12,372 12,372 12,372	0 0 0 0 0	45,486 45,486 45,486 45,486 45,486	3,877,986 3,877,986 3,877,986 3,877,986 3,877,986	4,135,686 4,135,686 4,135,686 4,135,686 4,135,686
2031 2032 2033 2034 2035	12,700 12,700 12,700 12,700 12,700	12,628 12,628 12,628 12,628 12,628	12,372 12,372 12,372 12,372 12,372 12,372	0 0 0 0 0	45,486 45,486 45,486 45,486 45,486	3,877,986 3,877,986 3,877,986 3,877,986 3,877,986	4,135,686 4,135,686 4,135,686 4,135,686 4,135,686
Total	822,621	440,397	431,592	7,501	1,760,954	186,765,896	200,121,864

TABLE B-5B **Annual Water Quantities Delivered to Each Contractor** 

(Acre-Feet)

Sheet 1 of 4

	1	North Bay Area			South B	ay Area (b		Ce	entral Coastal A	rea
Calendar Year	Napa County FC&WCD (a (1)	Solano County Water Agency (2)	Total (3)	Alameda County FC&WCD, Zone 7 (4)	Alameda County Water District (5)	Santa Clara Valley Water District (6)	Total (7)	San Luis Obispo County FC&WCD (8)	Santa Barbara County FC&WCD (9)	Total (10)
1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0	494 1,731 1,673 2,605	8,412 10,914 19,238 16,407	0 0 0 15,014	8,906 12,645 20,911 34,026	0 0 0 0	0 0 0 0	0 0 0
1966 1967 1968 1969 1970	0 0 1,214 2,687 3,618	0 0 0 0	0 0 1,214 2,687 3,618	5,511 4,780 6,133 6,635 9,249	14,864 12,882 24,817 813 0	34,538 39,101 70,105 62,264 80,311	54,913 56,763 101,055 69,712 89,560	0 0 0 0	0 0 0 0	0 0 0 0
1971 1972 1973 1974 1975	2,521 3,647 3,792 4,870 6,840	0 0 0 0	2,521 3,647 3,792 4,870 6,840	5,017 10,489 2,975 1,314 4,618	5,961 27,671 2,521 4 986	87,606 100,266 88,582 88,000 88,000	98,584 138,426 94,078 89,318 93,604	0 0 0 0	0 0 0 0	0 0 0 0
1976 1977 1978 1979 1980	7,122 8,226 6,034 6,561 6,707	0 0 0 0	7,122 8,226 6,034 6,561 6,707	17,131 12,644 10,984 19,325 16,790	21,300 18,840 5,863 10,874 11,034	88,000 76,220 95,727 91,991 88,000	126,431 107,704 112,574 122,190 115,824	0 0 0 0	0 0 0 0	0 0 0 0
1981 1982 1983 1984 1985	9,001 1,213 2,287 2,923 4,039	0 0 0 0	9,001 1,213 2,287 2,923 4,039	19,590 13,123 4,766 6,784 15,072	21,917 6,316 3,157 3,338 19,016	88,000 87,261 86,733 88,000 88,000	129,507 106,700 94,656 98,122 122,088	0 0 0 0	0 0 0 0	0 0 0 0
1986 1987 1988 1989 1990	3,519 7,693 5,392 6,195 6,940	1,400 1,550 9,725 17,256 19,131	4,919 9,243 15,117 23,451 26,071	10,609 23,406 25,830 26,227 33,034	12,379 25,390 33,464 26,042 31,703	88,000 88,000 87,961 90,000 92,000	110,988 136,796 147,255 142,269 156,737	0 0 0 0	0 0 0 0	0 0 0 0
1991 1992 1993 1994 1995	1,380 4,001 5,286 6,792 5,182	6,972 14,773 29,180 30,990 21,345	8,352 18,774 34,466 37,782 26,527	9,411 14,669 33,635 20,542 30,091	12,648 19,153 10,271 22,911 17,793	28,200 42,839 62,065 57,115 28,756	50,259 76,661 105,971 100,568 76,640	0 0 0 0	1,240 0 0 0 0	1,240 0 0 0
1996 1997 1998 1999 2000	4,893 10,425 11,065 11,710 12,330	29,911 32,310 38,710 39,170 39,620	34,804 42,735 49,775 50,880 51,950	18,966 45,347 31,000 46,000 46,000	19,662 34,800 33,300 33,665 34,800	89,850 100,000 100,000 100,000 100,000	128,478 180,147 164,300 179,665 180,800	100 5,885 5,813 5,871 5,932	0 38,986 38,986 45,486 45,486	100 44,871 44,799 51,357 51,418
2001 2002 2003 2004 2005	12,730 14,185 14,800 15,400 16,000	39,990 40,540 41,000 41,450 41,500	52,720 54,725 55,800 56,850 57,500	46,000 46,000 46,000 46,000 46,000	34,800 42,000 42,000 42,000 42,000	100,000 100,000 100,000 100,000 100,000	180,800 188,000 188,000 188,000 188,000	5,989 25,000 25,000 25,000 25,000	45,486 45,486 45,486 45,486 45,486	51,475 70,486 70,486 70,486 70,486
2006 2007 2008 2009 2010	16,450 17,000 17,650 18,200 18,750	41,550 41,600 41,650 41,700 41,750	58,000 58,600 59,300 59,900 60,500	46,000 46,000 46,000 46,000 46,000	42,000 42,000 42,000 42,000 42,000	100,000 100,000 100,000 100,000 100,000	188,000 188,000 188,000 188,000 188,000	25,000 25,000 25,000 25,000 25,000	45,486 45,486 45,486 45,486 45,486	70,486 70,486 70,486 70,486 70,486
2011 2012 2013 2014 2015	19,400 19,950 20,600 21,250 21,900	41,800 41,850 41,900 41,950 42,000	61,200 61,800 62,500 63,200 63,900	46,000 46,000 46,000 46,000 46,000	42,000 42,000 42,000 42,000 42,000	100,000 100,000 100,000 100,000 100,000	188,000 188,000 188,000 188,000 188,000	25,000 25,000 25,000 25,000 25,000	45,486 45,486 45,486 45,486 45,486	70,486 70,486 70,486 70,486 70,486
2016 2017 2018 2019 2020	22,500 23,100 23,700 24,300 24,900	42,000 42,000 42,000 42,000 42,000	64,500 65,100 65,700 66,300 66,900	46,000 46,000 46,000 46,000 46,000	42,000 42,000 42,000 42,000 42,000	100,000 100,000 100,000 100,000 100,000	188,000 188,000 188,000 188,000 188,000	25,000 25,000 25,000 25,000 25,000	45,486 45,486 45,486 45,486 45,486	70,486 70,486 70,486 70,486 70,486
2021 2022 2023 2024 2025	25,000 25,000 25,000 25,000 25,000	42,000 42,000 42,000 42,000 42,000	67,000 67,000 67,000 67,000 67,000	46,000 46,000 46,000 46,000	42,000 42,000 42,000 42,000 42,000	100,000 100,000 100,000 100,000 100,000	188,000 188,000 188,000 188,000 188,000	25,000 25,000 25,000 25,000 25,000	45,486 45,486 45,486 45,486 45,486	70,486 70,486 70,486 70,486 70,486
2026 2027 2028 2029 2030	25,000 25,000 25,000 25,000 25,000	42,000 42,000 42,000 42,000 42,000	67,000 67,000 67,000 67,000 67,000	46,000 46,000 46,000 46,000	42,000 42,000 42,000 42,000 42,000	100,000 100,000 100,000 100,000 100,000	188,000 188,000 188,000 188,000 188,000	25,000 25,000 25,000 25,000 25,000	45,486 45,486 45,486 45,486 45,486	70,486 70,486 70,486 70,486 70,486
2031 2032 2033 2034 2035	25,000 25,000 25,000 25,000 25,000	42,000 42,000 42,000 42,000 42,000	67,000 67,000 67,000 67,000 67,000	46,000 46,000 46,000 46,000 46,000	42,000 42,000 42,000 42,000 42,000	100,000 100,000 100,000 100,000 100,000	188,000 188,000 188,000 188,000 188,000	25,000 25,000 25,000 25,000 25,000	45,486 45,486 45,486 45,486 45,486	70,486 70,486 70,486 70,486 70,486
Total	943,870	1,794,273	2,738,143	2,224,200	2,097,926	6,286,505	10,608,631	879,590	1,762,194	2,641,784

a) For the period 1968 through 1987, deliveries are non-Project water pumped through an interim facility. b) For the period June 1962 through November 1967, deliveries were supplied by non-Project water.

TABLE B-5B **Annual Water Quantities Delivered to Each Contractor** 

(Acre-Feet) Sheet 2 of 4

	ı			,	e-Feet)				Sheet 2 of 4
			T	San S	Joaquin Valley	Area			
		Empire West	Kern C	County Water Ag	ency			Tulare Lake Basin Water	
Calendar Year	Dudley Ridge Water District (11)	Side Irrigation District (12)	Municipal and Industrial (13)	Agricultural (14)	Total (15)	County of Kings (16)	Oak Flat Water District (17)	Storage District (18)	Total (19)
1962	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0
1966 1967 1968 1969 1970	0 0 26,360 31,375 40,407	0 0 1,978 56 3,942	0 0 0 0	0 0 127,384 141,265 204,634	0 0 127,384 141,265 204,634	0 0 900 100 0	0 0 3,084 3,016 5,911	0 0 25,100 9,923 9,578	0 0 184,806 185,735 264,472
1971	41,053	5,990	0	360,151	360,151	3,700	7,212	122,485	540,591
1972	42,443	5,795	0	490,781	490,781	1,400	8,166	258,393	806,978
1973	22,057	3,000	0	341,469	341,469	1,500	3,214	50,464	421,704
1974	33,390	3,000	23,708	323,292	347,000	1,500	3,471	72,289	460,650
1975	40,555	3,000	14,529	396,291	410,820	1,600	3,576	86,258	545,809
1976	41,421	3,000	46,719	392,531	439,250	1,600	4,112	58,811	548,194
1977	11,153	738	27,882	163,425	191,307	1,530	1,472	18,081	224,281
1978	51,747	454	76,895	590,452	667,347	2,070	3,906	12,053	737,577
1979	38,544	1,739	62,997	683,049	746,046	2,000	6,149	155,121	949,599
1980	41,000	894	45,943	588,557	634,500	2,200	5,700	69,244	753,538
1981	41,000	5,859	75,758	615,642	691,400	2,300	4,300	83,438	828,297
1982	41,000	361	48,483	696,817	745,300	1,750	3,838	18,551	810,800
1983	42,900	0	6,854	587,653	594,507	3,550	3,822	1,006	645,785
1984	45,100	0	90,904	769,652	860,556	3,100	5,700	5,743	920,199
1985	46,251	5,197	88,515	800,381	888,896	3,400	5,433	109,791	1,058,968
1986	50,249	1,170	77,240	829,101	906,341	3,700	5,107	79,355	1,045,922
1987	46,288	2,525	117,173	852,731	969,904	4,000	5,625	93,084	1,121,426
1988	47,994	3,775	121,049	888,471	1,009,520	4,000	4,412	95,866	1,165,567
1989	57,049	3,000	123,896	1,022,166	1,146,062	4,000	6,091	127,950	1,344,152
1990	36,296	1,279	127,837	584,611	712,448	2,000	2,922	57,070	812,015
1991	927	221	33,122	8,965	42,087	0	141	2,180	45,556
1992	23,770	1,354	62,326	420,894	483,220	1,806	2,239	46,728	559,117
1993	50,618	2,741	121,925	1,035,962	1,157,887	4,000	4,858	124,468	1,344,572
1994	28,793	1,666	87,139	570,020	657,159	2,116	3,071	62,362	755,167
1995	60,686	1,631	135,415	1,016,114	1,151,529	4,000	5,169	101,869	1,324,884
1996	56,948	1,868	139,219	1,045,844	1,185,063	4,000	4,904	236,875	1,489,658
1997	53,370	3,000	121,600	966,130	1,087,730	4,000	5,700	118,500	1,272,300
1998	53,370	3,000	121,600	966,130	1,087,730	4,000	5,700	118,500	1,272,300
1999	53,370	3,000	121,600	966,130	1,087,730	4,000	5,700	118,500	1,272,300
2000	53,370	3,000	121,600	966,130	1,087,730	4,000	5,700	118,500	1,272,300
2001	53,370	3,000	121,600	966,130	1,087,730	4,000	5,700	118,500	1,272,300
2002	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2003	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2004	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2005	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2006	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2007	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2008	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2009	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2010	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2011	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2012	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2013	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2014	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2015	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2016	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2017	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2018	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2019	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2020	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2021	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2022	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2023	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2024	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2025	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2026	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2027	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2028	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2029	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2030	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2031	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2032	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2033	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2034	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
2035	53,370	3,000	134,600	953,130	1,087,730	4,000	5,700	118,500	1,272,300
Total	3,218,804	183,233	6,939,928	53,785,375	60,725,303	223,822	348,921	6,815,636	71,515,719

TABLE B-5B

Annual Water Quantities Delivered to Each Contractor

(Acre-Feet) Sheet 3 of 4

	I				Southern Cal	,				Sheet 3 of 4
Calendar Year	Antelope Valley-East Kern Water Agency (20)	Castaic Lake Water Agency (21)	Coachella Valley Water District (22)	Crestline- Lake Arrowhead Water Agency (23)	Desert Water Agency (24)	Littlerock Creek Irrigation District (25)	Mojave Water Agency (26)		San Bernardino Valley Municipal Water District (28)	San Gabriel Valley Municipal Water District (29)
1962 1963 1964 1965	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
1966 1967 1968 1969 1970	0 0 0 0	0 0 7,382 9,970 11,739	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1971 1972 1973 1974 1975	0 53 20 1,259 8,068	12,490 13,905 9,418 9,700 10,700	0 0 5,800 6,400 7,000	0 464 389 627 825	9,000 10,000 11,000	0 338 290 400 520	0 55 0 14 0	0 0 0 0	0 1,275 32,426 16,605 13,865	0 0 0 612 5,450
1976 1977 1978 1979 1980	27,782 11,202 44,137 60,493 72,407	11,700 5,075 11,362 19,145 15,092	7,600 0 10,084 10,063 10,884	1,002 1,109 1,209 1,260 1,239	12,000 0 15,300 15,000 17,000	589 111 208 133 191	0 80 0 4,000 4,000	0 0 0 0	12,273 24,833 4,055 18 0	6,071 8,996 7,771 290 1,085
1981 1982 1983 1984 1985	79,375 50,291 32,961 32,662 37,064	18,461 22,216 22,135 24,218 24,500	12,105 13,326 14,547 15,768 16,989	1,485 1,238 911 1,128 1,422	19,000 21,000 23,000 25,000 27,000	1,270 0 38 1 0	4,000 10,500 0 0	0 0 0 0 1,558	16,021 8,409 5,994 5,556 7,390	3,619 12,599 734 7,656 5,028
1986	32,449	27,229	18,210	1,506	29,000	163	0	3,096	6,421	9,454
1987	34,094	27,988	19,431	1,849	31,500	1,080	17	5,379	8,751	10,630
1988	34,079	30,438	20,652	2,006	34,000	419	9	1,770	12,637	8,948
1989	45,280	36,364	21,873	2,170	36,500	971	200	9,009	20,782	12,839
1990	47,206	28,579	23,100	1,827	38,100	1,747	0	8,608	18,831	16,649
1991	9,568	4,562	6,930	849	11,430	522	3,423	3,914	3,661	5,399
1992	30,265	20,699	10,427	519	17,197	251	10,686	4,035	3,358	7,908
1993	43,102	23,039	23,100	439	38,100	734	11,514	7,761	4,361	14,397
1994	49,153	26,441	14,102	785	23,257	1,098	16,852	8,418	9,135	15,230
1995	47,286	27,233	23,100	409	38,100	480	8,722	6,961	696	12,922
1996	56,276	33,756	62,219	485	102,622	494	7,427	11,410	6,064	15,989
1997	60,957	50,635	23,100	1,950	38,100	2,300	14,600	17,300	25,000	28,800
1998	138,400	39,100	23,100	1,950	38,100	2,290	19,999	17,300	41,000	28,800
1999	138,400	41,410	23,100	1,950	38,100	2,300	30,000	17,300	50,000	28,800
2000	138,400	43,949	23,100	1,950	38,100	2,300	64,983	17,300	56,000	28,800
2001	138,400	46,747	23,100	1,950	38,100	2,300	70,000	17,300	60,000	28,800
2002	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2003	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2004	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2005	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2006	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2007	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2008	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2009	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2010	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2011	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2012	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2013	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2014	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2015	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2016	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2017	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2018	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2019	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2020	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2021	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2022	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2023	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2024	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2025	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2026	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2027	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2028	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2029	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2030	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2031	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2032	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2033	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2034	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
2035	138,400	54,200	23,100	5,800	38,100	2,300	75,800	17,300	102,600	28,800
Total	6,206,689	2,610,177	1,274,610	234,102	2,090,006	101,738	2,858,281	746,619	3,963,817	1,313,476

c) Devil's Den Water District merged with Castaic Lake Water Agency effective January 1, 1992.

## TABLE B-5B **Annual Water Quantities Delivered to Each Contractor**

(Acre-Feet)

					(Acre-Fee	,				Sheet 4 of 4
	So	uthern Californ		ued)		Feather F	River Area			
Calendar Year	San Gorgonio Pass Water Agency (30)	Metropolitan Water District of Southern California (31)	Ventura County Flood Control District (32)	Total (33)	City of Yuba City (34)	County of Butte (35)	Plumas County FC&WCD (36)	Total (37)	South Bay Area Future Contractor (38)	Grand Total (39)
1962 1963 1964 1965	0 0 0 0	0 0 0	0 0 0	0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	8,906 12,645 20,911 34,026
1966 1967 1968 1969 1970	0 0 0 0	0 0 0 0	0 0 0 0	0 0 7,382 9,970 11,739	0 0 0 0	0 0 0 0	0 0 0 0 70	0 0 0 0 70	0 0 0 0	54,913 56,763 294,457 268,104 369,459
1971 1972 1973 1974 1975	0 0 0 0	0 71,938 159,883 277,717 526,491	0 0 0 0	12,490 88,028 217,226 323,334 583,919	0 0 0 0	192 186 53 127 253	64 505 679 648 405	256 691 732 775 658	0 0 0 0	654,442 1,037,770 737,532 878,947 1,230,830
1976 1977 1978 1979 1980	0 0 0 0	618,451 189,755 507,565 477,074 531,727	0 0 0 0	697,468 241,161 601,691 587,476 653,625	0 0 0 0	527 706 579 302 267	382 303 278 329 295	909 1,009 857 631 562	0 0 0 0	1,380,124 582,381 1,458,733 1,666,457 1,530,256
1981 1982 1983 1984 1985	0 0 0 0	795,846 691,192 343,521 457,582 683,625	0 0 0 0	951,182 830,771 443,841 569,571 804,576	0 0 0 108 62	221 334 325 177 308	355 305 262 272 254	576 639 587 557 624	0 0 0 0	1,918,563 1,750,123 1,187,156 1,591,372 1,990,295
1986 1987 1988 1989 1990	0 0 0 0	708,840 712,424 902,564 1,156,698 1,396,423	0 0 0 0 4,836	836,368 853,143 1,047,522 1,342,686 1,585,906	328 88 303 403 494	313 459 385 300 380	317 452 523 486 548	958 999 1,211 1,189 1,422	0 0 0 0	1,999,155 2,121,607 2,376,672 2,853,747 2,582,151
1991 1992 1993 1994 1995	0 0 0 0	391,447 710,313 652,190 807,866 436,042	988 0 0 0	442,693 815,658 818,737 972,337 601,951	265 642 903 1,035 910	328 117 256 329 203	420 485 444 492 308	1,013 1,244 1,603 1,856 1,421	0 0 0 0	549,113 1,471,454 2,305,349 1,867,710 2,031,423
1996 1997 1998 1999 2000	0 0 0 4,200 5,000	593,380 1,044,100 1,170,000 1,459,200 1,534,800	0 10,000 10,000 10,000 10,000	890,122 1,316,842 1,530,039 1,844,760 1,964,682	820 3,700 3,150 3,150 3,450	365 800 27,500 27,500 27,500	360 1,350 1,400 1,450 1,510	1,545 5,850 32,050 32,100 32,460	0 0 0 0	2,544,707 2,862,745 3,093,263 3,431,062 3,553,610
2001 2002 2003 2004 2005	5,000 5,000 6,000 6,500 7,000	1,434,100 2,011,500 2,011,500 2,011,500 2,011,500	10,000 20,000 20,000 20,000 20,000	1,875,797 2,522,900 2,523,900 2,524,400 2,524,900	3,450 9,600 9,600 9,600 9,600	27,500 27,500 27,500 27,500 27,500	1,570 1,630 1,690 1,750 1,810	32,520 38,730 38,790 38,850 38,910	0 0 0 0	3,465,612 4,147,141 4,149,276 4,150,886 4,152,096
2006 2007 2008 2009 2010	7,500 17,300 17,300 17,300 17,300	2,011,500 2,011,500 2,011,500 2,011,500 2,011,500	20,000 20,000 20,000 20,000 20,000	2,525,400 2,535,200 2,535,200 2,535,200 2,535,200	9,600 9,600 9,600 9,600 9,600	27,500 27,500 27,500 27,500 27,500	1,880 1,950 2,020 2,090 2,160	38,980 39,050 39,120 39,190 39,260	0 0 0 0	4,153,166 4,163,636 4,164,406 4,165,076 4,165,746
2011 2012 2013 2014 2015	17,300 17,300 17,300 17,300 17,300	2,011,500 2,011,500 2,011,500 2,011,500 2,011,500	20,000 20,000 20,000 20,000 20,000	2,535,200 2,535,200 2,535,200 2,535,200 2,535,200	9,600 9,600 9,600 9,600 9,600	27,500 27,500 27,500 27,500 27,500	2,240 2,320 2,410 2,500 2,600	39,340 39,420 39,510 39,600 39,700	0 0 0 0	4,166,526 4,167,206 4,167,996 4,168,786 4,169,586
2016 2017 2018 2019 2020	17,300 17,300 17,300 17,300 17,300	2,011,500 2,011,500 2,011,500 2,011,500 2,011,500	20,000 20,000 20,000 20,000 20,000	2,535,200 2,535,200 2,535,200 2,535,200 2,535,200	9,600 9,600 9,600 9,600 9,600	27,500 27,500 27,500 27,500 27,500	2,700 2,700 2,700 2,700 2,700	39,800 39,800 39,800 39,800 39,800	0 0 0 0	4,170,286 4,170,886 4,171,486 4,172,086 4,172,686
2021 2022 2023 2024 2025	17,300 17,300 17,300 17,300 17,300	2,011,500 2,011,500 2,011,500 2,011,500 2,011,500	20,000 20,000 20,000 20,000 20,000	2,535,200 2,535,200 2,535,200 2,535,200 2,535,200	9,600 9,600 9,600 9,600 9,600	27,500 27,500 27,500 27,500 27,500	2,700 2,700 2,700 2,700 2,700	39,800 39,800 39,800 39,800 39,800	0 0 0 0	4,172,786 4,172,786 4,172,786 4,172,786 4,172,786
2026 2027 2028 2029 2030	17,300 17,300 17,300 17,300 17,300	2,011,500 2,011,500 2,011,500 2,011,500 2,011,500	20,000 20,000 20,000 20,000 20,000	2,535,200 2,535,200 2,535,200 2,535,200 2,535,200	9,600 9,600 9,600 9,600 9,600	27,500 27,500 27,500 27,500 27,500	2,700 2,700 2,700 2,700 2,700	39,800 39,800 39,800 39,800 39,800	0 0 0 0	4,172,786 4,172,786 4,172,786 4,172,786 4,172,786
2031 2032 2033 2034 2035	17,300 17,300 17,300 17,300 17,300	2,011,500 2,011,500 2,011,500 2,011,500 2,011,500	20,000 20,000 20,000 20,000 20,000	2,535,200 2,535,200 2,535,200 2,535,200 2,535,200	9,600 9,600 9,600 9,600 9,600	27,500 27,500 27,500 27,500 27,500	2,700 2,700 2,700 2,700 2,700	39,800 39,800 39,800 39,800 39,800	0 0 0 0	4,172,786 4,172,786 4,172,786 4,172,786 4,172,786
Total	547,900	89,833,754	735,824	112,516,993	349,661	1,053,792	100,571	1,504,024	0	201,525,294

### **Annual Water Quantities Conveyed through Each** Pumping and Power Recovery Plant of Project Transportation Facilities (Acre-Feet)

Sheet 1 of 9

	I					North Bay	•					Sheet 1 of 9
						Cordelia Pur	nping Plant				imping Plant	
Calendar Year	Initial Fill Water (1)	Operational Losses (2)	Pumping Plai Water Supply Delivery (3)	Total (4)	Initial Fill Water (5)	Operational Losses (6)	Water Agend Water Supply Delivery (7)	Total (8)	Initial Fill Water (9)	Operational Losses (10)	Water Supply Delivery (a (11)	Total (12)
1961 1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1966 1967 1968 1969 1970	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 24 0 0	0 0 (10) 2 18	0 1,214 2,687 3,618	0 0 1,228 2,689 3,636
1971 1972 1973 1974 1975	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	4 (10) 1 10 10	2,521 3,647 3,792 4,870 6,840	2,525 3,637 3,793 4,880 6,850
1976 1977 1978 1979 1980	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	4 2 (6) 1 (3)	7,122 8,226 6,034 6,561 6,707	7,126 8,228 6,028 6,562 6,704
1981 1982 1983 1984 1985	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	8 (8) (12) (15) 13	9,001 1,213 2,287 2,923 4,039	9,009 1,205 2,275 2,908 4,052
1986 1987 1988 1989 1990	0 0 0 0	0 0 283 758 637	0 0 15,118 23,451 26,071	0 0 15,401 24,209 26,708	0 0 0 0	0 0 6 0	0 0 9,725 17,246 15,856	0 0 9,731 17,246 15,856	0 0 0 0	(4) 0 (1) (4) 3	3,519 7,693 5,392 6,195 6,940	3,515 7,693 5,391 6,191 6,943
1991 1992 1993 1994 1995	0 0 0 0	661 1,640 1,154 780 908	8,352 18,774 34,466 32,048 26,527	9,013 20,414 35,620 32,828 27,435	0 0 0 0	0 0 0 0	3,855 9,220 14,471 14,913 15,893	3,855 9,220 14,471 14,913 15,893	0 0 0 0	192 (3) 1 0	1,380 4,001 5,286 6,792 5,182	1,572 3,998 5,287 6,792 5,182
1996 1997 1998 1999 2000	0 0 0 0	1,354 51 51 51 51	34,804 42,735 49,775 50,880 51,950	36,158 42,786 49,826 50,931 52,001	0 0 0 0	658 5 5 5 5	17,069 15,990 17,250 18,070 18,070	17,727 15,995 17,255 18,075 18,075	0 0 0 0	204 5 5 5 5 5	4,893 10,425 11,065 11,710 12,330	5,097 10,430 11,070 11,715 12,335
2001 2002 2003 2004 2005	0 0 0 0	51 51 51 51 51	52,720 54,725 55,800 56,850 57,523	52,771 54,776 55,851 56,901 57,574	0 0 0 0	5 5 5 5 5	17,980 19,290 19,700 20,100 19,978	17,985 19,295 19,705 20,105 19,983	0 0 0 0	5 5 5 5 5	12,730 14,185 14,800 15,400 16,000	12,735 14,190 14,805 15,405 16,005
2006 2007 2008 2009 2010	0 0 0 0	51 51 51 51 51	58,000 58,600 59,300 59,900 60,500	58,051 58,651 59,351 59,951 60,551	0 0 0 0	5 5 5 5 5	20,100 20,100 20,100 20,100 20,100	20,105 20,105 20,105 20,105 20,105	0 0 0 0	5 5 5 5 5	16,450 17,000 17,650 18,200 18,750	16,455 17,005 17,655 18,205 18,755
2011 2012 2013 2014 2015	0 0 0 0	51 51 51 51 51	61,200 61,800 62,500 63,200 63,900	61,251 61,851 62,551 63,251 63,951	0 0 0 0	5 5 5 5 5	20,100 20,100 20,100 20,100 20,100	20,105 20,105 20,105 20,105 20,105	0 0 0 0	5 5 5 5 5	19,400 19,950 20,600 21,250 21,900	19,405 19,955 20,605 21,255 21,905
2016 2017 2018 2019 2020	0 0 0 0	51 51 51 51 51	64,500 65,100 65,700 66,300 66,900	64,551 65,151 65,751 66,351 66,951	0 0 0 0	5 5 5 5	20,184 20,184 20,184 20,184 20,184	20,189 20,189 20,189 20,189 20,189	0 0 0 0	5 5 5 5 5	22,500 23,100 23,700 24,300 24,900	22,505 23,105 23,705 24,305 24,905
2021 2022 2023 2024 2025	0 0 0 0	51 51 51 51 51	67,000 67,000 67,000 67,000 67,000	67,051 67,051 67,051 67,051 67,051	0 0 0 0	5 5 5 5 5	20,184 20,184 20,184 20,184 20,184	20,189 20,189 20,189 20,189 20,189	0 0 0 0	5 5 5 5 5	25,000 25,000 25,000 25,000 25,000	25,005 25,005 25,005 25,005 25,005
2026 2027 2028 2029 2030	0 0 0 0	51 51 51 51 51	67,000 67,000 67,000 67,000 67,000	67,051 67,051 67,051 67,051 67,051	0 0 0 0	5 5 5 5 5	20,184 20,184 20,184 20,184 20,184	20,189 20,189 20,189 20,189 20,189	0 0 0 0	5 5 5 5 5	25,000 25,000 25,000 25,000 25,000	25,005 25,005 25,005 25,005 25,005
2031 2032 2033 2034 2035	0 0 0 0	51 51 51 51 51	67,000 67,000 67,000 67,000 67,000	67,051 67,051 67,051 67,051 67,051	0 0 0 0	5 5 5 5 5	20,184 20,184 20,184 20,184 20,184	20,189 20,189 20,189 20,189 20,189	0 0 0 0	5 5 5 5 5	25,000 25,000 25,000 25,000 25,000	25,005 25,005 25,005 25,005 25,005

a) For the period 1968 through 1987, deliveries are non-SWP water pumped through an interim facility.

# Annual Water Quantities Conveyed through Each Pumping and Power Recovery Plant of Project Transportation Facilities (Acre-Feet)

Sheet 2 of 9

			South Ba	y Aqueduct			Acre-Fe	Cij		California	Agueduct			Sheet 2 of 9
			South Ba	y Aqueuuci					N	orth San Joa	•	ion		
			South Bay I	Pumping Plai	nt					Banks Pun	•			
									Transporta	ation Water				
	Initial	Opera-	Reservoir	Delive			Initial	Opera-	Reservoir	Delive			Conser-	
Calendar	Fill Water	tional Losses	Storage Changes	Water Supply (b	Recrea- tion	Total	Fill Water	tional Losses	Storage Changes	Water Supply	Recrea- tion	Total	vation Water	Total
Year	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)
1961 1962 1963 1964 1965	0 9 71 171 93	0 272 185 152 729	0 0 0 0	0 8,906 12,645 20,911 34,026	0 0 0 0	9,187 12,901 21,234 34,848	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1966 1967 1968 1969 1970	0 0 0 3,449 16,279	1,746 1,677 1,847 2,668 1,086	0 0 0 0 (5,355)	54,913 56,763 101,055 69,712 89,560	0 0 0 0	56,659 58,440 102,902 75,829 101,570	0 5,746 11,079 7,336 23,947	0 1,183 74,464 44,287 20,767	0 0 0 0 (5,355)	0 11,538 293,243 265,417 365,771	0 0 0 0	0 18,467 378,786 317,040 405,130	2,957 531,275 531,185 (12,995)	0 21,424 910,061 848,225 392,135
1971 1972 1973 1974 1975	0 0 0 0	1,815 3,557 (33) 1,287 320	8,854 2,273 (1,510) (10,056) 8,550	98,584 138,426 94,078 89,318 93,604	0 0 0 0	109,253 144,256 92,535 80,549 102,474	23,207 145,066 214,941 247,894 110,149	(10,754) 9,057 (4,951) (11,526) (8,092)	8,854 (4,285) 2,902 (32,510) 16,101	651,665 1,033,432 733,008 873,302 1,223,332	8 6,489 1,155 2,118 3,377	672,980 1,189,759 947,055 1,079,278 1,344,867	7,708 48,300 55,846 54,683 (102,625)	680,688 1,238,059 1,002,901 1,133,961 1,242,242
1976 1977 1978 1979 1980	0 0 0 0	2,431 2,866 2,165 2,401 1,758	1,391 2,685 (11,249) 1,069 (6,563)	126,431 107,704 112,574 122,190 115,824	141 112 126 89 123	130,394 113,367 103,616 125,749 111,142	67,834 0 67,457 17,397 3,159	5,443 39,897 (36,898) 60,958 58,484	(244,124) (157,543) 35,129 (32,307) (275,538)	1,372,093 573,146 1,451,842 1,659,265 1,529,187	1,745 1,111 1,177 1,398 2,131	1,202,991 456,611 1,518,707 1,706,711 1,317,423	(442,348) (13,507) 752,075 (112,053) 186,601	760,643 443,104 2,270,782 1,594,658 1,504,024
1981 1982 1983 1984 1985	0 0 0 0	2,627 2,344 2,151 2,088 2,817	13,742 (23,928) (22,886) 8,442 (1,607)	129,507 107,439 94,656 98,122 122,088	121 129 132 158 152	145,997 85,984 74,053 108,810 123,450	46,060 5,979 6,071 38,649 0	85,350 61,556 47,022 97,143 110,469	40,536 99,897 (310,477) (108,548) 137,783	1,908,986 1,743,145 1,184,282 1,587,936 1,985,632	4,974 4,646 7,853 5,874 5,452	2,085,906 1,915,223 934,751 1,621,054 2,239,336	(931,878) 347,983 835,771 21,875 (110,569)	1,154,028 2,263,206 1,770,522 1,642,929 2,128,767
1986 1987 1988 1989 1990	0 0 0 0	2,299 2,625 2,884 2,673 2,763	(1,850) (584) (698) 3,296 1,982	110,988 136,796 147,255 142,269 156,537	130 137 142 152 168	111,567 138,974 149,583 148,390 161,450	0 0 0 0	90,799 91,428 107,250 117,603 120,791	20,177 (23,116) (35,484) (38,058) (318,420)	1,993,278 2,121,366 2,368,793 2,829,107 2,554,658	3,865 7,672 4,889 8,135 9,262	2,108,119 2,197,350 2,445,448 2,916,787 2,366,291	200,298 (458,725) (303,583) 421,131 (218,200)	2,308,417 1,738,625 2,141,865 3,337,918 2,148,091
1991 1992 1993 1994 1995	0 0 0 0	2,637 2,881 1,940 1,981 1,188	(4,532) 756 (20,051) 1,714 (12,333)	50,259 76,661 105,971 100,568 76,640	150 147 143 168 146	48,514 80,445 88,003 104,431 65,641	0 0 0 0	80,106 91,391 149,372 148,714 173,074	265,223 (18,371) (273,789) (28,269) (334,999)	539,984 1,451,436 2,279,323 1,828,072 2,003,475	4,879 2,605 2,609 3,903 2,575	890,192 1,527,061 2,157,515 1,952,420 1,844,125	210,643 (138,456) 849,249 (417,358) 230,553	1,100,835 1,388,605 3,006,764 1,535,062 2,074,678
1996 1997 1998 1999 2000	0 0 0 0	3,086 3,726 3,324 3,407 3,348	3,922 2,504 (7,493) 0	77,278 140,147 164,300 179,665 180,800	150 400 400 400 400	84,436 146,777 160,531 183,472 184,548	0 0 0 0	187,090 106,379 104,264 103,796 104,409	371,557 57,727 (3,339) (213,766) 140,547	2,313,336 2,814,160 3,011,438 3,348,082 3,469,200	3,847 8,722 8,724 8,726 8,730	2,875,830 2,986,988 3,121,087 3,246,838 3,722,886	358,692 (41,052) (75,687) (404,378) (416,293)	3,234,522 2,945,936 3,045,400 2,842,460 3,306,593
2001 2002 2003 2004 2005	0 0 0 0	3,409 3,262 3,262 3,262 3,262	0 0 0 0	180,800 188,000 188,000 188,000 188,000	400 400 400 400 400	184,609 191,662 191,662 191,662 191,662	0 0 0 0	103,132 107,535 105,404 105,298 107,390	45,542 (422) 23,102 (35,160) 14,154	3,380,372 4,053,686 4,054,686 4,055,186 4,055,686	8,732 9,575 9,575 9,575 9,575	3,537,778 4,170,374 4,192,767 4,134,899 4,186,805	414,589 (60,865) 273,689 (141,016) (139,695)	3,952,367 4,109,509 4,466,456 3,993,883 4,047,110
2006 2007 2008 2009 2010	0 0 0 0	3,262 3,262 3,262 3,262 3,262	0 0 0 0	188,000 188,000 188,000 188,000 188,000	400 400 400 400 400	191,662 191,662 191,662 191,662 191,662	0 0 0 0	105,572 105,336 105,388 105,529 105,471	27,598 (35,143) (1,200) 10,911 (11,542)	4,055,986 4,065,986 4,065,986 4,065,986 4,065,986	9,575 9,575 9,575 9,575 9,575	4,198,931 4,145,754 4,179,749 4,192,001 4,169,490	302,377 (190,679) 140,730 7,787 (72,446)	4,501,308 3,955,075 4,320,479 4,199,788 4,097,044
2011 2012 2013 2014 2015	0 0 0 0	3,262 3,262 3,262 3,262 3,262	0 0 0 0	188,000 188,000 188,000 188,000 188,000	400 400 400 400 400	191,662 191,662 191,662 191,662 191,662	0 0 0 0	105,446 105,385 105,428 105,383 105,466	2,524 3,897 19,364 (24,282) 22,839	4,065,986 4,065,986 4,065,986 4,065,986 4,065,986	9,575 9,575 9,575 9,575 9,575	4,183,531 4,184,843 4,200,353 4,156,662 4,203,866	(3,593) 7,053 143,760 (188,541) 14,607	4,179,938 4,191,896 4,344,113 3,968,121 4,218,473
2016 2017 2018 2019 2020	0 0 0 0	3,262 3,262 3,262 3,262 3,262	0 0 0 0	188,000 188,000 188,000 188,000 188,000	400 400 400 400 400	191,662 191,662 191,662 191,662 191,662	0 0 0 0	105,507 105,450 105,431 105,398 105,404	(9,921) 3,117 (14,722) 9,286 2,483	4,065,986 4,065,986 4,065,986 4,065,986 4,065,986	9,575 9,575 9,575 9,575 9,575	4,171,147 4,184,128 4,166,270 4,190,245 4,183,448	119,071 9,624 (7,593) (46,049) 74,295	4,290,218 4,193,752 4,158,677 4,144,196 4,257,743
2021 2022 2023 2024 2025	0 0 0 0	3,262 3,262 3,262 3,262 3,262	0 0 0 0	188,000 188,000 188,000 188,000 188,000	400 400 400 400 400	191,662 191,662 191,662 191,662 191,662	0 0 0 0	105,438 107,331 105,397 107,341 105,443	(8,712) (5,688) 10,692 (10,055) 4,364	4,065,986 4,065,986 4,065,986 4,065,986 4,065,986	9,575 9,575 9,575 9,575 9,575	4,172,287 4,177,204 4,191,650 4,172,847 4,185,368	63,888 (279,056) 155,058 (144,478) 145,512	4,236,175 3,898,148 4,346,708 4,028,369 4,330,880
2026 2027 2028 2029 2030	0 0 0 0	3,262 3,262 3,262 3,262 3,262	0 0 0 0	188,000 188,000 188,000 188,000 188,000	400 400 400 400 400	191,662 191,662 191,662 191,662 191,662	0 0 0 0	105,476 107,362 107,521 105,481 105,238	3,165 (6,101) 1,161 18,075 (26,161)	4,065,986 4,065,986 4,065,986 4,065,986 4,065,986	9,575 9,575 9,575 9,575 9,575	4,184,202 4,176,822 4,184,243 4,199,117 4,154,638	117,759 (246,618) 20,340 286,276 (216,966)	4,301,961 3,930,204 4,204,583 4,485,393 3,937,672
2031 2032 2033 2034 2035	0 0 0 0	3,262 3,262 3,262 3,262 3,262	0 0 0 0	188,000 188,000 188,000 188,000 188,000	400 400 400 400 400	191,662 191,662 191,662 191,662 191,662	0 0 0 0	107,339 105,500 105,469 105,492 105,225	8,984 10,768 (9,079) 16,140 (9,799)	4,065,986 4,065,986 4,065,986 4,065,986 4,065,986	9,575 9,575 9,575 9,575 9,575	4,191,884 4,191,829 4,171,951 4,197,193 4,170,987	(77,929) 237,435 3,166 83,106 (114,582)	4,113,955 4,429,264 4,175,117 4,280,299 4,056,405

b) For the period June 1962 through November 1967, deliveries were supplied by non-SWP water.

### **Annual Water Quantities Conveyed through Each** Pumping and Power Recovery Plant of Project Transportation Facilities (Acre-Feet)

Sheet 3 of 9

					,	Acre-Fee fornia Aque	duct (continu	ed)				Sheet 3 of 9
			San Luis	Division		· · ·			outh San Jo	aquin Divisio	1	
		D	os Amigos F	Pumping Plar				В	uena Vista F	umping Plan	t	
Calendar Year	Initial Fill Water (27)	Opera- tional Losses (28)	Reservoir Storage Changes (29)	Delive Water Supply (30)	ries Recrea- tion (31)	Total (32)	Initial Fill Water (33)	Opera- tional Losses (34)	Reservoir Storage Changes (35)	Delive Water Supply (36)	ries Recrea- tion (37)	Total (38)
1961 1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1966 1967 1968 1969 1970	0 0 11,079 3,887 7,668	0 0 25,126 9,922 1,901	0 0 0 0	0 0 189,104 192,689 270,300	0 0 0 0	0 0 225,309 206,498 279,869	0 0 0 0 0 4,779	0 0 0 0 1,012	0 0 0 0	0 0 0 0 3	0 0 0 0	0 0 0 0 5,794
1971 1972 1973 1974 1975	23,207 145,066 214,941 247,894 110,149	(12,030) (6,635) (6,778) (16,765) (12,144)	0 (6,558) 1,329 (15,295) (693)	545,869 886,840 635,716 780,513 1,126,152	0 6,481 1,147 2,108 3,358	557,046 1,025,194 846,355 998,455 1,226,822	7,853 100,274 204,638 237,554 103,352	8,399 20,044 35,695 19,672 26,342	0 (6,558) 1,329 (15,295) (693)	101,512 223,626 311,096 388,949 672,531	0 6,481 1,147 2,108 3,358	117,764 343,867 553,905 632,988 804,890
1976 1977 1978 1979 1980	67,834 0 67,457 17,397 3,159	(456) 26,359 1,905 33,884 34,391	(152,171) (116,219) 79,308 (51,299) (272,825)	1,241,550 463,970 1,335,362 1,530,926 1,407,663	1,581 737 680 685 1,514	1,158,338 374,847 1,484,712 1,531,593 1,173,902	61,122 0 65,027 12,302 0	29,428 25,173 17,751 46,157 49,025	(152,171) (116,219) 121,904 (51,299) (134,009)	785,055 271,944 762,043 737,714 778,059	1,581 560 674 502 1,262	725,015 181,458 967,399 745,376 694,337
1981 1982 1983 1984 1985	46,060 5,979 6,071 38,649 0	36,962 57,146 63,583 109,263 86,772	23,359 116,086 (101,155) (112,744) 138,898	1,775,179 1,631,868 1,085,804 1,484,114 1,858,111	4,348 4,205 7,475 5,391 4,936	1,885,908 1,815,284 1,061,778 1,524,673 2,088,717	0 0 0 0	38,942 29,059 40,205 38,487 42,838	23,359 117,174 (101,155) (114,984) 139,689	1,077,322 990,863 593,920 781,955 992,606	4,112 4,045 7,291 5,244 4,804	1,143,735 1,141,141 540,261 710,702 1,179,937
1986 1987 1988 1989 1990	0 0 0 0	51,963 64,828 72,680 90,090 118,316	19,989 (25,707) (34,592) (29,411) (15,942)	1,877,183 1,978,945 2,217,126 2,679,845 2,394,999	3,426 7,121 4,490 7,652 8,922	1,952,561 2,025,187 2,259,704 2,748,176 2,506,295	0 0 0 0	36,751 30,495 38,804 29,594 46,865	37,546 (25,522) (29,747) (60,826) (14,959)	1,014,294 1,027,361 1,244,196 1,532,625 1,769,991	3,285 6,937 4,360 7,490 8,879	1,091,876 1,039,271 1,257,613 1,508,883 1,810,776
1991 1992 1993 1994 1995	0 0 0 0	922,227 118,796 136,432 152,414 137,937	9,325 (225,603) (220,537) (78,957) (12,473)	489,584 1,372,536 2,170,494 1,724,433 1,921,666	4,605 2,079 1,864 3,083 1,711	1,425,741 1,267,808 2,088,253 1,800,973 2,048,841	0 0 0 0	39,274 28,138 14,186 35,083 33,963	96,506 (98,271) (128,363) (88,211) (16,431)	447,152 920,978 908,200 1,107,122 706,742	4,560 1,995 1,676 2,918 1,669	587,492 852,840 795,699 1,056,912 725,943
1996 1997 1998 1999 2000	0 0 0 0	54,834 63,685 64,112 58,476 59,327	8,943 55,223 4,154 (213,766) 140,547	2,231,154 2,668,313 2,841,438 3,162,717 3,282,700	2,938 7,210 7,210 7,210 7,210	2,297,869 2,794,431 2,916,914 3,014,637 3,489,784	0 0 0 0	34,768 45,666 46,093 40,457 41,308	12,728 55,223 4,154 (213,766) 140,547	886,123 1,437,842 1,651,039 2,040,760 2,117,182	2,868 7,010 7,010 7,010 7,010	936,487 1,545,741 1,708,296 1,874,461 2,306,047
2001 2002 2003 2004 2005	0 0 0 0	59,000 59,408 59,334 59,461 59,363	45,542 (422) 23,102 (35,160) 14,154	3,193,872 3,859,986 3,860,986 3,861,486 3,861,986	7,210 7,210 7,210 7,210 7,210	3,305,624 3,926,182 3,950,632 3,892,997 3,942,713	0 0 0 0	40,981 41,389 41,315 41,442 41,344	45,542 (422) 23,102 (35,160) 14,154	2,071,797 2,678,413 2,679,413 2,679,913 2,680,413	7,010 7,010 7,010 7,010 7,010	2,165,330 2,726,390 2,750,840 2,693,205 2,742,921
2006 2007 2008 2009 2010	0 0 0 0	59,489 59,467 59,350 59,405 59,373	27,598 (35,143) (1,200) 10,911 (11,542)	3,862,486 3,872,286 3,872,286 3,872,286 3,872,286	7,210 7,210 7,210 7,210 7,210	3,956,783 3,903,820 3,937,646 3,949,812 3,927,327	0 0 0 0	41,470 41,448 41,331 41,386 41,354	27,598 (35,143) (1,200) 10,911 (11,542)	2,680,913 2,690,713 2,690,713 2,690,713 2,690,713	7,010 7,010 7,010 7,010 7,010	2,756,991 2,704,028 2,737,854 2,750,020 2,727,535
2011 2012 2013 2014 2015	0 0 0 0	59,381 59,402 59,331 59,546 59,353	2,524 3,897 19,364 (24,282) 22,839	3,872,286 3,872,286 3,872,286 3,872,286 3,872,286	7,210 7,210 7,210 7,210 7,210	3,941,401 3,942,795 3,958,191 3,914,760 3,961,688	0 0 0 0	41,362 41,383 41,312 41,527 41,334	2,524 3,897 19,364 (24,282) 22,839	2,690,713 2,690,713 2,690,713 2,690,713 2,690,713	7,010 7,010 7,010 7,010 7,010	2,741,609 2,743,003 2,758,399 2,714,968 2,761,896
2016 2017 2018 2019 2020	0 0 0 0	59,442 59,378 59,383 59,402 59,313	(9,921) 3,117 (14,722) 9,286 2,483	3,872,286 3,872,286 3,872,286 3,872,286 3,872,286	7,210 7,210 7,210 7,210 7,210	3,929,017 3,941,991 3,924,157 3,948,184 3,941,292	0 0 0 0	41,423 41,359 41,364 41,383 41,294	(9,921) 3,117 (14,722) 9,286 2,483	2,690,713 2,690,713 2,690,713 2,690,713 2,690,713	7,010 7,010 7,010 7,010 7,010	2,729,225 2,742,199 2,724,365 2,748,392 2,741,500
2021 2022 2023 2024 2025	0 0 0 0	59,355 59,420 59,309 59,393 59,375	(8,712) (5,688) 10,692 (10,055) 4,364	3,872,286 3,872,286 3,872,286 3,872,286 3,872,286	7,210 7,210 7,210 7,210 7,210	3,930,139 3,933,228 3,949,497 3,928,834 3,943,235	0 0 0 0	41,336 41,401 41,290 41,374 41,356	(8,712) (5,688) 10,692 (10,055) 4,364	2,690,713 2,690,713 2,690,713 2,690,713 2,690,713	7,010 7,010 7,010 7,010 7,010	2,730,347 2,733,436 2,749,705 2,729,042 2,743,443
2026 2027 2028 2029 2030	0 0 0 0	59,371 59,424 59,517 59,414 59,492	3,165 (6,101) 1,161 18,075 (26,161)	3,872,286 3,872,286 3,872,286 3,872,286 3,872,286	7,210 7,210 7,210 7,210 7,210	3,942,032 3,932,819 3,940,174 3,956,985 3,912,827	0 0 0 0	41,352 41,405 41,498 41,395 41,473	3,165 (6,101) 1,161 18,075 (26,161)	2,690,713 2,690,713 2,690,713 2,690,713 2,690,713	7,010 7,010 7,010 7,010 7,010	2,742,240 2,733,027 2,740,382 2,757,193 2,713,035
2031 2032 2033 2034 2035	0 0 0 0	59,451 59,460 59,377 59,402 59,441	8,984 10,768 (9,079) 16,140 (9,799)	3,872,286 3,872,286 3,872,286 3,872,286 3,872,286	7,210 7,210 7,210 7,210 7,210	3,947,931 3,949,724 3,929,794 3,955,038 3,929,138	0 0 0 0	41,432 41,441 41,358 41,383 41,422	8,984 10,768 (9,079) 16,140 (9,799)	2,690,713 2,690,713 2,690,713 2,690,713 2,690,713	7,010 7,010 7,010 7,010 7,010	2,748,139 2,749,932 2,730,002 2,755,246 2,729,346

## TABLE B-6 Annual Water Quantities Conveyed through Each Pumping and Power Recovery Plant of Project Transportation Facilities (Acre-Feet)

Sheet 4 of 9

	(ACTE-FEET) Sheet 4 of 9  California Aqueduct (continued)											
					South S	an Joaquin	Division (con	ntinued)				
			Teerink Pur	. •						mping Plant		
	Initial Fill	Opera- tional	Reservoir Storage	Delive Water	ries Recrea-		Initial Fill	Opera- tional	Reservoir Storage	Delive Water	Recrea-	
Calendar Year	Water (39)	Losses (40)	Changes (41)	Supply (42)	tion (43)	Total (44)	Water (45)	Losses (46)	Changes (47)	Supply (48)	tion (49)	Total (50)
1961 1962	0 0	0	0	0 0	0	0	0	0	0	0	0	0 0
1963 1964 1965	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
1966 1967 1968	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
1969 1970 1971	0 198 7,533	0 2 (112)	0 0	0 0 3,552	0 0	0 200 10,973	7,366	0 0 (159)	0 0	0 0	0 0	0 0 7,207
1972 1973 1974 1975	100,274 204,638 237,554 103,352	12,765 21,543 11,843 19,763	(6,558) 1,329 (15,295) (693)	84,955 229,685 336,198 621,706	6,481 1,147 2,108 3,358	197,917 458,342 572,408 747,486	100,274 204,638 237,554 103,352	13,160 32,414 17,655 25,326	(6,558) 1,329 (15,295) (693)	78,891 209,769 318,198 586,286	6,481 1,147 2,108 3,358	192,248 449,297 560,220 717,629
1976 1977 1978 1979 1980	61,122 0 65,027 12,302 0	18,552 16,415 28,820 50,663 48,825	(152,171) (116,219) 121,904 (51,299) (134,009)	740,486 246,349 631,121 625,561 696,405	1,581 560 674 502 1,262	669,570 147,105 847,546 637,729 612,483	61,122 0 65,027 12,302 0	21,468 15,698 26,705 50,580 58,085	(152,171) (116,219) 121,904 (51,299) (134,009)	700,935 240,191 599,973 586,959 658,588	1,581 560 674 502 1,262	632,935 140,230 814,283 599,044 583,926
1981 1982 1983 1984 1985	0 0 0 0	51,600 44,353 43,961 45,999 50,106	23,359 117,332 (101,155) (115,088) 139,973	998,307 878,486 487,915 632,262 854,684	4,112 4,045 7,291 5,244 4,804	1,077,378 1,044,216 438,012 568,417 1,049,567	0 0 0 0	48,844 33,541 34,698 33,132 54,831	23,359 117,277 (101,155) (115,092) 139,954	959,274 830,704 450,489 582,414 810,606	4,112 4,045 7,291 5,244 4,804	1,035,589 985,567 391,323 505,698 1,010,195
1986 1987 1988 1989 1990	0 0 0 0	38,747 47,815 53,815 49,088 66,868	37,546 (25,522) (29,747) (60,826) (14,959)	882,300 897,905 1,097,643 1,382,599 1,627,246	3,285 6,937 4,360 7,490 8,879	961,878 927,135 1,126,071 1,378,351 1,688,034	0 0 0 0	41,421 33,195 39,775 42,307 56,653	37,546 (25,522) (29,747) (60,826) (14,959)	839,839 853,157 1,055,649 1,339,358 1,590,893	3,285 6,937 4,360 7,490 8,879	922,091 867,767 1,070,037 1,328,329 1,641,466
1991 1992 1993 1994 1995	0 0 0 0	40,564 31,820 27,158 50,802 48,705	105,176 (92,123) (127,738) (88,211) (16,431)	446,384 844,376 799,143 1,007,214 2,586,829	4,560 1,995 1,676 2,918 1,669	596,684 786,068 700,239 972,723 2,620,772	0 0 0 0	34,016 34,477 28,614 57,203 36,309	105,176 (92,123) (127,738) (88,211) (16,431)	446,384 820,133 771,146 977,703 560,695	4,560 1,995 1,676 2,918 1,669	590,136 764,482 673,698 949,613 582,242
1996 1997 1998 1999 2000	0 0 0 0	61,860 42,036 42,463 36,827 37,678	12,769 55,223 4,154 (213,766) 140,547	734,330 1,288,742 1,501,939 1,891,660 1,968,082	2,868 7,010 7,010 7,010 7,010	811,827 1,393,011 1,555,566 1,721,731 2,153,317	0 0 0 0	47,136 41,786 42,213 36,577 37,428	12,766 55,223 4,154 (213,766) 140,547	698,144 1,248,042 1,461,239 1,850,960 1,927,382	2,868 7,010 7,010 7,010 7,010	760,914 1,352,061 1,514,616 1,680,781 2,112,367
2001 2002 2003 2004 2005	0 0 0 0	37,351 37,759 37,685 37,812 37,714	45,542 (422) 23,102 (35,160) 14,154	1,922,697 2,569,753 2,570,753 2,571,253 2,571,753	7,010 7,010 7,010 7,010 7,010	2,012,600 2,614,100 2,638,550 2,580,915 2,630,631	0 0 0 0	37,101 37,509 37,435 37,562 37,464	45,542 (422) 23,102 (35,160) 14,154	1,881,997 2,531,927 2,532,927 2,533,427 2,533,927	7,010 7,010 7,010 7,010 7,010	1,971,650 2,576,024 2,600,474 2,542,839 2,592,555
2006 2007 2008 2009 2010	0 0 0 0	37,840 37,818 37,701 37,756 37,724	27,598 (35,143) (1,200) 10,911 (11,542)	2,572,253 2,582,053 2,582,053 2,582,053 2,582,053	7,010 7,010 7,010 7,010 7,010	2,644,701 2,591,738 2,625,564 2,637,730 2,615,245	0 0 0 0	37,590 37,568 37,451 37,506 37,474	27,598 (35,143) (1,200) 10,911 (11,542)	2,534,427 2,544,227 2,544,227 2,544,227 2,544,227	7,010 7,010 7,010 7,010 7,010	2,606,625 2,553,662 2,587,488 2,599,654 2,577,169
2011 2012 2013 2014 2015	0 0 0 0	37,732 37,753 37,682 37,897 37,704	2,524 3,897 19,364 (24,282) 22,839	2,582,053 2,582,053 2,582,053 2,582,053 2,582,053	7,010 7,010 7,010 7,010 7,010	2,629,319 2,630,713 2,646,109 2,602,678 2,649,606	0 0 0 0	37,482 37,503 37,432 37,647 37,454	2,524 3,897 19,364 (24,282) 22,839	2,544,227 2,544,227 2,544,227 2,544,227 2,544,227	7,010 7,010 7,010 7,010 7,010	2,591,243 2,592,637 2,608,033 2,564,602 2,611,530
2016 2017 2018 2019 2020	0 0 0 0	37,793 37,729 37,734 37,753 37,664	(9,921) 3,117 (14,722) 9,286 2,483	2,582,053 2,582,053 2,582,053 2,582,053 2,582,053	7,010 7,010 7,010 7,010 7,010	2,616,935 2,629,909 2,612,075 2,636,102 2,629,210	0 0 0 0	37,543 37,479 37,484 37,503 37,414	(9,921) 3,117 (14,722) 9,286 2,483	2,544,227 2,544,227 2,544,227 2,544,227 2,544,227	7,010 7,010 7,010 7,010 7,010	2,578,859 2,591,833 2,573,999 2,598,026 2,591,134
2021 2022 2023 2024 2025	0 0 0 0	37,706 37,771 37,660 37,744 37,726	(8,712) (5,688) 10,692 (10,055) 4,364	2,582,053 2,582,053 2,582,053 2,582,053 2,582,053	7,010 7,010 7,010 7,010 7,010	2,618,057 2,621,146 2,637,415 2,616,752 2,631,153	0 0 0 0	37,456 37,521 37,410 37,494 37,476	(8,712) (5,688) 10,692 (10,055) 4,364	2,544,227 2,544,227 2,544,227 2,544,227 2,544,227	7,010 7,010 7,010 7,010 7,010	2,579,981 2,583,070 2,599,339 2,578,676 2,593,077
2026 2027 2028 2029 2030	0 0 0 0	37,722 37,775 37,868 37,765 37,843	3,165 (6,101) 1,161 18,075 (26,161)	2,582,053 2,582,053 2,582,053 2,582,053 2,582,053	7,010 7,010 7,010 7,010 7,010	2,629,950 2,620,737 2,628,092 2,644,903 2,600,745	0 0 0 0	37,472 37,525 37,618 37,515 37,593	3,165 (6,101) 1,161 18,075 (26,161)	2,544,227 2,544,227 2,544,227 2,544,227 2,544,227	7,010 7,010 7,010 7,010 7,010	2,591,874 2,582,661 2,590,016 2,606,827 2,562,669
2031 2032 2033 2034 2035	0 0 0 0	37,802 37,811 37,728 37,753 37,792	8,984 10,768 (9,079) 16,140 (9,799)	2,582,053 2,582,053 2,582,053 2,582,053 2,582,053	7,010 7,010 7,010 7,010 7,010	2,635,849 2,637,642 2,617,712 2,642,956 2,617,056	0 0 0 0	37,552 37,561 37,478 37,503 37,542	8,984 10,768 (9,079) 16,140 (9,799)	2,544,227 2,544,227 2,544,227 2,544,227 2,544,227	7,010 7,010 7,010 7,010 7,010	2,597,773 2,599,566 2,579,636 2,604,880 2,578,980

# Annual Water Quantities Conveyed through Each Pumping and Power Recovery Plant of Project Transportation Facilities (Acre-Feet)

Sheet 5 of 9

Telephone   Tele						,	Acre-Fee	,	1)				Sheet 5 of 9
Calendar				Tabaabaa	i Divisian	Cali	fornia Aque	auct (continu	ea)	Majaya	Divolon		
Calendar						n#							
Description   Color					, ,				Onoro			orios	
Vest		Initial Fill						Initial Fill					
1952				•									
1985   0			-	, ,	. ,	. ,	, ,			, ,	. ,	` ′	, ,
1965   0													
1967	1963	0	0	0	0		0	0	0	0		0	0
1967													0
1986	1966												0
1970	1968	0	0	0	0	0	0	0	0	0	0	0	0
1972   100,274   10,087   (6,568)   74,123   6,481   400,387   0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1969 1970												0
1976	1971	5,446		0	0	0	5,454	0	0	0	0	0	0
1976		100,274 204,638	16,067 34,051	(6,558) 1 329	74,123 207 808		190,387 448,973						0
1977   01.142   21.006   (151.71)   65.768   1.861   1.7386   0   0   0   0   0   0   0   0   0	1974	237,554	18,181	(15,295)	313,634	2,108	556,182	0	0	Ō	Ō	0	
1990   0													
1990   0	1977	0	18,424	(116,219)	236,086	560	138,851	0	0	Ō	Ō	Ō	0
1982   0	1979	12,302	46,332	(51,299)	568,338	502	576,175	0	0	0	0	0	0
1988	1980	0	52,967	(134,009)	639,743	1,262		0	0	0	0	0	-
1988			40,602 37,244										0
1985   O	1983	0	40,690	(101,155)	431,182	7,291	378,008	0	0	0	0	0	0
1987   0													
1988   O   42,017   (29,747)   1,044,737   4,360   1,061,367   O   21,696   1,101   537,568   971   522,090   1989   O   32,727   (60,826)   1,326,041   7,490   1,306,975   O   4,868   (5,783)   788,111   1,388   732,004   1991   O   33,991   105,76   441,453   4,560   568,188   1992   O   23,121   (92,123)   809,771   1,995   742,764   O   14,673   (17,115)   374,110   423   372,291   1993   O   11,946   (127,738)   759,486   1,676   646,399   O   9,304   (3,455)   305,222   443   314,514   1994   O   40,608   (88,211)   90,815   2,918   916,330   O   21,837   3,385   469,996   430   445,658   1998   O   36,001   (16,431)   542,495   2,988   763,704   O   14,573   3,385   469,996   430   445,658   1998   O   36,001   (16,431)   542,495   7,010   1,328,311   O   2,222   3,333   1,095,039   1,630   1,195,141   1,388   1,395,039   1,630   1,195,141   1,395,039   1,630   1,242,785   2,000   O   35,678   140,647   1,395,162   7,010   2,868,617   O   20,445   4,460   1,275,800   1,630   1,427,759   2,000   O   35,678   140,647   1,395,162   7,010   2,686,717   O   20,860   23,322   1,435,733   1,630   1,477,584   2,000   O   35,678   140,647   1,395,162   7,010   2,869,274   O   20,860   3,33   1,407,955   1,330   1,477,584   2,000   O   35,688   23,102   2,511,200   7,010   2,585,2747   O   20,860   3,33   1,407,755   1,330   1,477,589   1,477,599   1,477,599   1,477,599   1,477,599   1,477,599   1,477,599   1,477,599   1,477,599   1,477,599   1,477,599   1,477,599   1,477,599   1,47							900,816						
1990   0   42,188   (14,959)   1,579,466   8,879   1,615,574   0   8,888   (5,783)   788,111   1,388   792,604   1982   0   23,121   (92,123)   809,771   1,995   742,764   0   14,873   (17,115)   374,110   423   372,291   1,994   0   40,808   (88,211)   809,871   1,995   742,764   0   14,873   (17,115)   374,110   423   372,291   1,994   0   40,808   (88,211)   80,8015   2,918   916,330   0   21,837   3,395   469,996   430   495,658   499,960   40,808   (88,211)   842,656   1,669   563,704   0   14,139   3,395   469,996   430   495,658   499,656   430   495,658   499,656   430   495,658   430   49			29,580 42,017	(25,522) (29,747)	841,322 1,044,737	6,937 4,360	852,317 1,061,367		11,665 21,696	(15,270) 1,101		1,239 971	415,504 561,336
1991   0   33,999   105,176   441,453   4,560   585,188   0   17,908   34,422   177,544   394   230,288   1992   0   23,126   (92,123)   90,9771   1,995   742,764   0   14,873   (77,115)   374,110   423   372,294	1989		32,270	(60,826)	1,328,041	7,490	1,306,975		4,686	(200,363)	716,360		522,090 792,604
1992   0   22,121   (92,123)   809,771   1,995   742,764   0   14,873   (17,115)   374,110   423   372,291   1994   0   40,808   (88,211)   96,815   1,676   645,369   0   9,304   (3,455)   308,222   433   34,514   1994   0   40,808   (88,211)   524,665   1,669   563,704   0   14,139   (30,761)   304,836   439   445,658   1996   0   40,712   12,837   677,429   2,868   733,846   0   10,769   (14,607)   390,107   565   366,841   1997   0   40,236   55,223   1,225,842   7,010   1,490,866   0   23,228   (383)   1,095,039   1,630   1,119,514   1,999   0   35,027   (213,766)   1,828,760   7,010   1,490,866   0   23,228   (383)   1,095,039   1,630   1,119,514   1,999   0   35,027   (213,766)   1,828,760   7,010   1,490,866   0   23,228   (383)   1,095,039   1,630   1,119,514   1,490,866   0   23,228   (383)   1,095,039   1,630   1,119,514   1,490,866   0   23,228   (383)   1,095,039   1,630   1,119,514   1,490,866   0   23,228   (383)   1,095,039   1,630   1,119,514   1,490,866   0   23,228   (383)   1,095,039   1,630   1,119,514   1,490,866   0   23,228   (383)   1,095,039   1,630   1,119,514   1,490,866   0   23,228   (383)   1,095,039   1,630   1,119,514   1,490,866   0   23,228   (383)   1,095,039   1,630   1,119,514   1,490,866   0   23,228   (383)   1,095,039   1,630   1,119,514   1,490,866   0   23,228   (383)   1,095,039   1,630   1,119,514   1,490,866   0   23,228   0   2,490,500   1,480,733   1,650   1,487,559   1,480,733   1,487,559   1,480,733   1,487,559   1,480,733   1,487,559   1,480,733   1,487,559   1,480,733   1,487,559   1,480,733   1,487,559   1,480,733   1,480,745   1,480,			•							, , ,	,		
1996   0   36,001   (16,431)   542,465   1,669   563,704   0   14,139   (30,761)   384,836   427   396,841   397   390,771   390,777   390,107   565   386,834   397   390,771	1992	0	23,121	(92,123)	809,771	1,995	742,764	0	14,873	(17,115)	374,110	423	372,291
1996	1994	Ō	11,946 40,808	(88,211)	960,815	2,918	916,330	0	21,837	3,395	469,996	430	495,658
1997   0		-		, , ,				_					
1998   0			40.236								909,793		
2000   0 35,878   140,547   1,905,182   7,010   2,088,617   0 21,067   26,129   1,438,733   1,630   1,487,559   2001   0 35,551   45,542   1,859,797   7,010   1,947,900   0 21,044   (19,591)   1,464,185   1,630   1,467,268   2002   0 35,959   (422)   2,511,200   7,010   2,577,197   0 2,0800   9,363   1,341,795   1,630   1,372,648   2003   0 36,012   (35,160)   2,511,700   7,010   2,577,197   0 2,0802   19,022   1,341,795   1,630   1,383,249   2004   0 36,012   (35,160)   2,511,700   7,010   2,519,562   0 20,960   (2,0992)   1,342,295   1,630   1,343,893   2005   0 35,944   14,154   2,512,200   7,010   2,589,278   0 20,960   5,544   1,342,795   1,630   1,370,875   2006   0 36,040   27,598   2,512,700   7,010   2,583,348   0 20,949   22,377   1,343,295   1,630   1,388,251   2009   0 35,965   1,091   2,522,500   7,010   2,564,211   0 20,938   (16,898   1,353,095   1,630   1,362,282   2009   0 35,965   1,911   2,522,500   7,010   2,553,892   0 20,836   (16,922)   1,353,095   1,630   1,362,282   2010   0 35,932   (11,542)   2,522,500   7,010   2,563,377   0 2,0839   (8,592)   1,353,095   1,630   1,366,971   2,503,095   1,630   1,366,971   2,503,095   1,630   1,366,971   2,503,095   1,630   1,366,971   2,503,095   1,630   1,366,971   2,503,095   1,630   1,366,971   2,503,095   1,630   1,366,971   2,503,095   1,630   1,366,971   2,503,095   1,630   1,366,971   2,503,095   1,630   1,366,971   2,503,095   1,630   1,366,971   2,503,095   1,630   1,366,971   2,503,095   1,630   1,377,509   2,503,095   1,630   1,377,509   2,503,095   1,630   1,377,509   2,503,095   2,503,09			40,663	4,154		7,010	1,490,866		23,228		1,095,039 1,275,080	1,630	1,119,514
2003													
2003			35,551	45,542	1,859,797	7,010	1,947,900		21,044	(19,591)	1,464,185	1,630	1,467,268
2005   0 35,914	2003	0	35,885	23,102	2,511,200	7,010	2,577,197	0	20,802	19,022	1,341,795	1,630	1,383,249
2007	2004 2005		36,012 35,914	(35,160) 14,154		7,010 7,010	2,519,562 2,569,278		20,960 20,906	(20,992) 5,544	1,342,295 1,342,795	1,630 1,630	1,343,893 1,370,875
2007	2006	0	36,040	27,598	2,512,700	7,010	2,583,348	0	20,949	22,377	1,343,295	1,630	1,388,251
2010   0   35,924   (11,542)   2,522,500   7,010   2,553,892   0   20,838   (8,592)   1,353,095   1,630   1,366,971			36,018	(35,143)	2,522,500	7,010	2,530,385		20,986	(16,898)	1,353,095	1,630	1,358,813
2011 0 35,932 2,524 2,522,500 7,010 2,567,966 0 20,856 (1,972) 1,353,095 1,630 1,373,609 2012 0 35,953 3,897 2,522,500 7,010 2,584,756 0 20,763 22,057 1,353,095 1,630 1,377,941 0 36,097 (24,282) 2,522,500 7,010 2,584,756 0 20,763 22,057 1,353,095 1,630 1,397,545 2014 0 36,097 (24,282) 2,522,500 7,010 2,584,756 0 20,763 22,057 1,353,095 1,630 1,397,545 2015 0 35,904 22,839 2,522,500 7,010 2,588,556 0 20,815 19,960 1,353,095 1,630 1,395,500 2016 0 35,904 22,839 2,522,500 7,010 2,558,582 0 20,815 19,960 1,353,095 1,630 1,395,500 2016 0 35,993 3,117 2,522,500 7,010 2,558,585 0 20,818 1,982 1,353,095 1,630 1,377,525 2018 0 35,934 (14,722) 2,522,500 7,010 2,568,556 0 20,818 1,982 1,353,095 1,630 1,377,525 2018 0 35,934 (14,722) 2,522,500 7,010 2,568,556 0 20,818 1,982 1,353,095 1,630 1,363,722 2019 0 35,864 2,483 2,522,500 7,010 2,567,857 0 20,836 (11,839) 1,353,095 1,630 1,378,968 2020 0 35,864 2,483 2,522,500 7,010 2,567,857 0 20,788 3,455 1,353,095 1,630 1,378,968 2021 0 35,906 (8,712) 2,522,500 7,010 2,567,857 0 20,788 3,455 1,353,095 1,630 1,378,968 2022 0 35,944 (10,055) 2,522,500 7,010 2,556,062 0 20,783 12,672 1,353,095 1,630 1,370,156 2023 0 35,944 (10,055) 2,522,500 7,010 2,556,062 0 20,783 12,672 1,353,095 1,630 1,377,056 20 20,400 0 35,956 4,364 2,522,500 7,010 2,556,062 0 20,783 12,672 1,353,095 1,630 1,377,368 2025 0 35,976 (6,101) 2,522,500 7,010 2,556,062 0 20,783 12,672 1,353,095 1,630 1,377,368 2027 0 35,976 (6,101) 2,522,500 7,010 2,556,399 0 20,876 (10,679) 1,353,095 1,630 1,377,368 2027 0 35,976 (6,101) 2,522,500 7,010 2,559,399 0 20,876 (10,679) 1,353,095 1,630 1,377,368 2029 0 35,965 1,807 2,522,500 7,010 2,556,685 0 20,876 (10,679) 1,353,095 1,630 1,377,368 2023 0 35,966 4,364 2,522,500 7,010 2,559,399 0 20,876 (10,679) 1,353,095 1,630 1,377,368 2023 0 35,966 4,364 2,522,500 7,010 2,559,399 0 20,876 (10,679) 1,353,095 1,630 1,377,368 2023 0 35,966 4,364 2,522,500 7,010 2,559,399 0 20,876 (10,679) 1,353,095 1,630 1,377,368 2023 0 35,966 4,364 2,522,500 7,010 2,556,689 0 20,876 (10,679) 1,353,09	2009	0	35,956		2,522,500	7,010	2,576,377	0	20,879	6,684	1,353,095	1,630	1,382,288
2012   0   35,953   3,897   2,522,500   7,010   2,586,360   0   20,847   2,369   1,353,095   1,630   1,377,941													
2014         0         36,097         (24,282)         2,522,500         7,010         2,541,325         0         21,047         (20,338)         1,353,095         1,630         1,355,500           2016         0         35,994         22,839         2,522,500         7,010         2,555,582         0         20,908         (12,156)         1,353,095         1,630         1,395,500           2017         0         35,929         3,117         2,522,500         7,010         2,550,722         0         20,818         1,982         1,353,095         1,630         1,363,477           2018         0         35,934         (14,722)         2,522,500         7,010         2,550,722         0         20,836         (11,839)         1,353,095         1,630         1,363,472           2019         0         35,953         9,286         2,522,500         7,010         2,550,722         0         20,857         8,526         1,353,095         1,630         1,384,722           2029         0         35,964         2,483         2,522,500         7,010         2,556,702         0         20,878         8,526         1,353,095         1,630         1,384,419           2021         0         35,9	2012	0	35,953	3,897	2,522,500	7,010	2,569,360	0	20,847	2,369	1,353,095	1,630	1,377,941
2015         0         35,904         22,839         2,522,500         7,010         2,588,253         0         20,815         19,960         1,353,095         1,630         1,395,500           2016         0         35,993         (9,921)         2,522,500         7,010         2,555,582         0         20,908         (12,156)         1,353,095         1,630         1,363,477           2018         0         35,929         3,117         2,522,500         7,010         2,586,556         0         20,818         1,982         1,353,095         1,630         1,363,722           2019         0         35,953         9,286         2,522,500         7,010         2,574,749         0         20,836         (13,839         1,353,095         1,630         1,384,108           2020         0         35,964         2,483         2,522,500         7,010         2,556,704         0         20,878         8,526         1,353,095         1,630         1,386,418           2021         0         35,966         (8,712)         2,522,500         7,010         2,556,704         0         20,822         (9,132)         1,353,095         1,630         1,370,156           2023         0         35,961<									21,047				
2017         0         35,929         3,117         2,522,500         7,010         2,588,556         0         20,818         1,982         1,353,095         1,630         1,377,525           2018         0         35,934         (14,722)         2,522,500         7,010         2,550,722         0         20,836         (11,839)         1,353,095         1,630         1,363,722           2019         0         35,953         9,286         2,522,500         7,010         2,574,749         0         20,857         8,526         1,353,095         1,630         1,384,108           2020         0         35,964         2,483         2,522,500         7,010         2,556,704         0         20,876         5,262         1,353,095         1,630         1,378,968           2021         0         35,906         (8,712)         2,522,500         7,010         2,556,704         0         20,876         (5,445)         1,353,095         1,630         1,366,415           2022         0         35,966         (16,692)         2,522,500         7,010         2,556,704         0         20,876         (5,445)         1,353,095         1,630         1,376,6415           2024         0         35,9	2015	0	35,904	22,839	2,522,500	7,010	2,588,253	0	20,815	19,960	1,353,095	1,630	1,395,500
2018         0         35,934         (14,722)         2,522,500         7,010         2,550,722         0         20,836         (11,839)         1,353,095         1,630         1,363,722           2019         0         35,953         9,286         2,522,500         7,010         2,574,749         0         20,857         8,526         1,353,095         1,630         1,384,108           2021         0         35,906         (8,712)         2,522,500         7,010         2,556,704         0         20,822         (9,132)         1,353,095         1,630         1,366,415           2022         0         35,971         (5,688)         2,522,500         7,010         2,556,704         0         20,876         (5,445)         1,353,095         1,630         1,366,415           2023         0         35,860         10,692         2,522,500         7,010         2,556,399         0         20,876         (5,445)         1,353,095         1,630         1,388,190           2024         0         35,944         (10,055)         2,522,500         7,010         2,556,399         0         20,876         (1,679)         1,353,095         1,630         1,388,190           2025         0 <t< td=""><td></td><td></td><td>35,993 35,929</td><td>(9,921) 3 117</td><td>2,522,500 2,522,500</td><td>7,010 7,010</td><td>2,555,582 2,568,556</td><td></td><td>20,908 20,818</td><td>(12,156) 1,982</td><td>1,353,095 1,353,095</td><td></td><td>1,363,477 1,377,525</td></t<>			35,993 35,929	(9,921) 3 117	2,522,500 2,522,500	7,010 7,010	2,555,582 2,568,556		20,908 20,818	(12,156) 1,982	1,353,095 1,353,095		1,363,477 1,377,525
2020         0         35,864         2,483         2,522,500         7,010         2,567,857         0         20,788         3,455         1,353,095         1,630         1,378,968           2021         0         35,906         (8,712)         2,522,500         7,010         2,556,704         0         20,822         (9,132)         1,353,095         1,630         1,378,968           2022         0         35,971         (5,688)         2,522,500         7,010         2,559,793         0         20,876         (5,445)         1,353,095         1,630         1,371,156           2023         0         35,860         10,692         2,522,500         7,010         2,555,399         0         20,876         (10,672)         1,353,095         1,630         1,388,190           2024         0         35,944         (10,055)         2,522,500         7,010         2,559,380         0         20,876         (10,679)         1,353,095         1,630         1,376,368           2025         0         35,926         4,364         2,522,500         7,010         2,559,380         0         20,811         1,832         1,353,095         1,630         1,377,368           2026         0         35	2018	0	35,934	(14,722)	2,522,500	7,010	2,550,722	0	20,836	(11,839)	1,353,095	1,630	1,363,722
2022         0         35,971         (5,688)         2,522,500         7,010         2,559,793         0         20,876         (5,445)         1,353,095         1,630         1,370,156           2024         0         35,944         (10,055)         2,522,500         7,010         2,555,399         0         20,876         (10,679)         1,353,095         1,630         1,384,192           2025         0         35,926         4,364         2,522,500         7,010         2,559,389         0         20,876         (10,679)         1,353,095         1,630         1,364,922           2026         0         35,922         3,165         2,522,500         7,010         2,569,800         0         20,811         1,832         1,353,095         1,630         1,377,388           2027         0         35,975         (6,101)         2,522,500         7,010         2,569,739         0         20,811         1,832         1,353,095         1,630         1,377,636           2028         0         36,068         1,161         2,522,500         7,010         2,566,739         0         20,815         1,897         1,353,095         1,630         1,377,636           2029         0         35,96			35,864			7,010	2,567,857		20,788	3,455	1,353,095	1,630	
2023         0         35,860         10,692         2,522,500         7,010         2,576,062         0         20,793         12,672         1,353,095         1,630         1,388,190           2024         0         35,944         (10,055)         2,522,500         7,010         2,555,399         0         20,876         (10,679)         1,353,095         1,630         1,364,922           2025         0         35,926         4,364         2,522,500         7,010         2,568,597         0         20,830         749         1,353,095         1,630         1,376,304           2026         0         35,922         3,165         2,522,500         7,010         2,568,597         0         20,811         1,832         1,353,095         1,630         1,377,388           2027         0         35,975         (6,101)         2,522,500         7,010         2,559,384         0         20,873         (2,769)         1,353,095         1,630         1,377,368           2028         0         36,068         1,161         2,522,500         7,010         2,566,739         0         21,014         1,897         1,353,095         1,630         1,377,636           2030         0         36,043 <td></td>													
2024         0         35,944         (10,055)         2,522,500         7,010         2,555,399         0         20,876         (10,679)         1,353,095         1,363         1,364,922           2026         0         35,926         4,364         2,522,500         7,010         2,568,897         0         20,810         749         1,353,095         1,630         1,376,304           2026         0         35,922         3,165         2,522,500         7,010         2,568,597         0         20,811         1,832         1,353,095         1,630         1,377,368           2027         0         35,975         (6,101)         2,522,500         7,010         2,566,739         0         20,811         1,832         1,353,095         1,630         1,377,686           2028         0         36,088         1,161         2,522,500         7,010         2,566,739         0         21,014         1,897         1,353,095         1,630         1,377,636           2029         0         35,965         18,075         2,522,500         7,010         2,558,359         0         20,885         16,730         1,353,095         1,630         1,377,636           2031         0         36,043	2023	0	35,860	10,692	2,522,500	7,010	2,576,062	0	20,793	12,672	1,353,095	1,630	1,388,190
2026 0 35,922 3,165 2,522,500 7,010 2,568,597 0 20,811 1,832 1,353,095 1,630 1,377,368 2027 0 35,975 (6,101) 2,522,500 7,010 2,566,739 0 21,014 1,897 1,353,095 1,630 1,377,368 0 21,014 1,897 1,353,095 1,630 1,377,368 0 21,014 1,897 1,353,095 1,630 1,377,368 0 21,014 1,897 1,353,095 1,630 1,377,368 0 20,000 0 36,068 1,161 2,522,500 7,010 2,566,739 0 21,014 1,897 1,353,095 1,630 1,377,368 0 20,000 0 36,043 (26,161) 2,522,500 7,010 2,539,392 0 21,005 (9,050) 1,353,095 1,630 1,366,680 0 20,000 0 36,002 8,984 2,522,500 7,010 2,576,289 0 21,005 (9,050) 1,353,095 1,630 1,373,957 1,000 0 36,001 1,0768 2,522,500 7,010 2,576,289 0 20,945 4,505 1,353,095 1,630 1,380,175 1,000 0 36,001 1,0768 2,522,500 7,010 2,576,289 0 20,945 4,505 1,353,095 1,630 1,380,175 1,000 0 35,953 16,140 2,522,500 7,010 2,576,369 0 20,821 (9,294) 1,353,095 1,630 1,386,252 1,000 0 35,953 16,140 2,522,500 7,010 2,581,600 0 2,851 15,049 1,353,095 1,630 1,390,625 1,000 0 35,953 16,140 2,522,500 7,010 2,581,600 0 2,851 15,049 1,353,095 1,630 1,390,625 1,000 0 36,953 16,140 2,522,500 7,010 2,581,600 0 2,851 15,049 1,353,095 1,630 1,390,625 1,000 0 36,953 16,140 2,522,500 7,010 2,581,600 0 2,851 15,049 1,353,095 1,630 1,390,625 1,000 0 2,851 15,049 1,353,095 1,630 1,390,625 1,000 0 2,851 15,049 1,353,095 1,630 1,390,625 1,000 0 2,851 15,049 1,353,095 1,630 1,390,625 1,000 0 2,000					2,522,500 2,522,500								
2027         0         35,975         (6,101)         2,522,500         7,010         2,559,384         0         20,873         (2,769)         1,353,095         1,630         1,377,636           2029         0         36,068         1,161         2,522,500         7,010         2,569,385         0         21,014         1,897         1,353,095         1,630         1,377,636           2029         0         35,965         18,075         2,522,500         7,010         2,539,392         0         21,005         (9,050)         1,353,095         1,630         1,372,636           2030         0         36,043         (26,161)         2,522,500         7,010         2,539,392         0         21,005         (9,050)         1,353,095         1,630         1,376,680           2031         0         36,002         8,984         2,522,500         7,010         2,574,496         0         21,054         (1,822)         1,353,095         1,630         1,373,957           2032         0         36,011         10,768         2,522,500         7,010         2,576,289         0         20,945         4,505         1,353,095         1,630         1,380,175           2033         0         35,98					, ,								
2029         0         35,965         18,075         2,522,500         7,010         2,583,550         0         20,885         16,730         1,353,095         1,630         1,392,340           2030         0         36,043         (26,161)         2,522,500         7,010         2,539,392         0         21,005         (9,050)         1,353,095         1,630         1,386,680           2031         0         36,002         8,984         2,522,500         7,010         2,574,496         0         21,054         (1,822)         1,353,095         1,630         1,373,957           2032         0         36,011         10,768         2,522,500         7,010         2,576,289         0         20,945         4,505         1,353,095         1,630         1,380,175           2033         0         35,928         (9,079)         2,522,500         7,010         2,556,359         0         20,821         (9,294)         1,353,095         1,630         1,366,252           2034         0         35,953         16,140         2,522,500         7,010         2,581,603         0         20,851         15,049         1,353,095         1,630         1,390,625	2027	0	35,975	(6,101)	2,522,500	7,010	2,559,384	0	20,873	(2,769)	1,353,095	1,630	1,372,829
2031 0 36,002 8,984 2,522,500 7,010 2,574,496 0 21,054 (1,822) 1,353,095 1,630 1,373,957 2032 0 36,011 10,768 2,522,500 7,010 2,576,289 0 20,945 4,505 1,353,095 1,630 1,380,175 2033 0 35,928 (9,079) 2,522,500 7,010 2,556,359 0 20,821 (9,294) 1,353,095 1,630 1,366,252 2034 0 35,953 16,140 2,522,500 7,010 2,581,603 0 20,851 15,049 1,353,095 1,630 1,390,625	2029	0	35,965	18,075	2,522,500	7,010	2,583,550	0	20,885	16,730	1,353,095	1,630	1,392,340
2032         0         36,011         10,768         2,522,500         7,010         2,576,289         0         20,945         4,505         1,353,095         1,630         1,380,175           2033         0         35,928         (9,079)         2,522,500         7,010         2,556,359         0         20,821         (9,294)         1,353,095         1,630         1,366,252           2034         0         35,953         16,140         2,522,500         7,010         2,581,603         0         20,851         15,049         1,353,095         1,630         1,390,625           2034         0         35,953         16,140         2,522,500         7,010         2,581,603         0         20,851         15,049         1,353,095         1,630         1,390,625										, , ,			
2034 0 35,953 16,140 2,522,500 7,010 2,581,603 0 20,851 15,049 1,353,095 1,630 1,390,625	2032	0	36,011	10,768	2,522,500	7,010	2,576,289	0	20,945	4,505	1,353,095	1,630	1,380,175
	2034				2,522,500 2,522,500	7,010 7,010				15,049		1,630	
		0						0					

# Annual Water Quantities Conveyed through Each Pumping and Power Recovery Plant of Project Transportation Facilities (Acre-Feet)

	(Acre-Feet) Sheet 6 of 9  California Aqueduct (continued)											
							on (continue					
		Pe	earblossom l	Pumping Plai		ojavo Diviolo		·	lojave Sipho	n Powernlar	nt	
		Opera-	Reservoir	Delive				Opera-	Reservoir	'	reries	
Calendar Year	Initial Fill Water (63)	tional Losses (64)	Storage Changes (65)	Water Supply (66)	Recrea- tion (67)	Total (68)	Initial Fill Water (69)	tional Losses (70)	Storage Changes (71)	Water Supply (72)	Recrea- tion (73)	Total (74)
1961 1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1966 1967 1968 1969 1970	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1971 1972 1973 1974 1975	21 35,243 80,177 76,694 10,000	5,282 21,522 10,847 2,364	0 (153) (2,700) (11,149) (8,397)	0 1,794 52,201 102,839 190,351	0 0 72 44 70	21 42,166 151,272 179,275 194,388	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1976 1977 1978 1979 1980	4,168 0 19,922 12,302 0	7,040 11,398 5,696 6,836 16,200	(16,055) (17,534) 69,130 (32,518) 6,159	236,713 102,326 374,845 362,114 401,214	152 580 498 502 781	232,018 96,770 470,091 349,236 424,354	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1981 1982 1983 1984 1985	0 0 0 0	4,992 5,251 11,745 18,228 25,292	(36,278) 55,232 (26,847) 23,230 (2,815)	574,573 401,037 231,188 252,066 350,758	933 1,919 1,180 1,494 1,076	544,220 463,439 217,266 295,018 374,311	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1986 1987 1988 1989 1990	0 0 0 0	30,876 27,552 32,209 31,500 32,672	12,258 (15,270) 1,101 (20,363) (5,793)	394,156 367,531 501,300 661,189 730,560	1,508 1,239 971 1,407 1,388	438,798 381,052 535,581 673,733 758,827	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1991 1992 1993 1994 1995	0 0 0 0	15,209 13,989 9,779 150 6,820	34,774 (17,451) (3,455) 3,395 (29,282)	164,149 338,249 255,117 409,928 328,882	394 423 443 430 427	214,526 335,210 261,884 413,903 306,847	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1996 1997 1998 1999 2000	0 0 0 0	11,564 17,471 17,878 15,595 15,717	(13,035) 59,719 (383) (54,860) 26,129	320,611 827,736 935,549 1,115,580 1,279,233	565 1,430 1,430 1,430 1,430	319,705 906,356 954,474 1,077,745 1,322,509	0 0 0 0	0 14,001 14,408 12,125 12,247	0 59,719 (383) (54,860) 26,129	0 814,636 917,050 1,087,080 1,215,750	0 1,430 1,430 1,430 1,430	0 889,786 932,505 1,045,775 1,255,556
2001 2002 2003 2004 2005	0 0 0 0	15,694 15,510 15,452 15,610 15,556	(19,591) 9,363 19,022 (20,992) 5,544	1,304,685 1,182,795 1,183,795 1,184,295 1,184,795	1,430 1,430 1,430 1,430 1,430	1,302,218 1,209,098 1,219,699 1,180,343 1,207,325	0 0 0 0	12,224 12,040 11,982 12,140 12,086	(19,591) 9,363 19,022 (20,992) 5,544	1,236,185 1,157,795 1,158,795 1,159,295 1,159,795	1,430 1,430 1,430 1,430 1,430	1,230,248 1,180,628 1,191,229 1,151,873 1,178,855
2006 2007 2008 2009 2010	0 0 0 0	15,599 15,636 15,588 15,529 15,488	22,377 (16,898) (13,411) 6,684 (8,592)	1,185,295 1,195,095 1,195,095 1,195,095 1,195,095	1,430 1,430 1,430 1,430 1,430	1,224,701 1,195,263 1,198,702 1,218,738 1,203,421	0 0 0 0	12,129 12,166 12,118 12,059 12,018	22,377 (16,898) (13,411) 6,684 (8,592)	1,160,295 1,170,095 1,170,095 1,170,095 1,170,095	1,430 1,430 1,430 1,430 1,430	1,196,231 1,166,793 1,170,232 1,190,268 1,174,951
2011 2012 2013 2014 2015	0 0 0 0	15,506 15,497 15,413 15,697 15,465	(1,972) 2,369 22,057 (20,338) 19,960	1,195,095 1,195,095 1,195,095 1,195,095 1,195,095	1,430 1,430 1,430 1,430 1,430	1,210,059 1,214,391 1,233,995 1,191,884 1,231,950	0 0 0 0	12,036 12,027 11,943 12,227 11,995	(1,972) 2,369 22,057 (20,338) 19,960	1,170,095 1,170,095 1,170,095 1,170,095 1,170,095	1,430 1,430 1,430 1,430 1,430	1,181,589 1,185,921 1,205,525 1,163,414 1,203,480
2016 2017 2018 2019 2020	0 0 0 0	15,558 15,468 15,486 15,507 15,438	(12,156) 1,982 (11,839) 8,526 3,455	1,195,095 1,195,095 1,195,095 1,195,095 1,195,095	1,430 1,430 1,430 1,430 1,430	1,199,927 1,213,975 1,200,172 1,220,558 1,215,418	0 0 0 0	12,088 11,998 12,016 12,037 11,968	(12,156) 1,982 (11,839) 8,526 3,455	1,170,095 1,170,095 1,170,095 1,170,095 1,170,095	1,430 1,430 1,430 1,430 1,430	1,171,457 1,185,505 1,171,702 1,192,088 1,186,948
2021 2022 2023 2024 2025	0 0 0 0	15,472 15,526 15,443 15,526 15,480	(9,132) (5,445) 12,672 (10,679) 749	1,195,095 1,195,095 1,195,095 1,195,095 1,195,095	1,430 1,430 1,430 1,430 1,430	1,202,865 1,206,606 1,224,640 1,201,372 1,212,754	0 0 0 0	12,002 12,056 11,973 12,056 12,010	(9,132) (5,445) 12,672 (10,679) 749	1,170,095 1,170,095 1,170,095 1,170,095 1,170,095	1,430 1,430 1,430 1,430 1,430	1,174,395 1,178,136 1,196,170 1,172,902 1,184,284
2026 2027 2028 2029 2030	0 0 0 0	15,461 15,523 15,664 15,535 15,655	1,832 (2,769) 1,897 16,730 (9,050)	1,195,095 1,195,095 1,195,095 1,195,095 1,195,095	1,430 1,430 1,430 1,430 1,430	1,213,818 1,209,279 1,214,086 1,228,790 1,203,130	0 0 0 0	11,991 12,053 12,194 12,065 12,185	1,832 (2,769) 1,897 16,730 (9,050)	1,170,095 1,170,095 1,170,095 1,170,095 1,170,095	1,430 1,430 1,430 1,430 1,430	1,185,348 1,180,809 1,185,616 1,200,320 1,174,660
2031 2032 2033 2034 2035	0 0 0 0	15,704 15,595 15,471 15,501 15,655	(1,822) 4,505 (9,294) 15,049 14,972	1,195,095 1,195,095 1,195,095 1,195,095 1,195,095	1,430 1,430 1,430 1,430 1,430	1,210,407 1,216,625 1,202,702 1,227,075 1,227,152	0 0 0 0	12,234 12,125 12,001 12,031 12,185	(1,822) 4,505 (9,294) 15,049 14,972	1,170,095 1,170,095 1,170,095 1,170,095 1,170,095	1,430 1,430 1,430 1,430 1,430	1,181,937 1,188,155 1,174,232 1,198,605 1,198,682

### TABLE B-6 **Annual Water Quantities Conveyed through Each** Pumping and Power Recovery Plant of Project Transportation Facilities (Acre-Feet)

					,	ACTE-FEE fornia Aque	duct (continu	ued)				Sheet 7 of 9
			Santa Ana	a Division		, ,			t Branch, Ca	lifornia Aque	educt	
			Devil Cany	on Powerpla	nt				Oso Pump	oing Plant		
		Opera-	Reservoir	Delive				Opera-	Reservoir		veries .	
Calendar Year	Initial Fill Water (75)	tional Losses (76)	Storage Changes (77)	Water Supply (78)	Recrea- tion (79)	Total (80)	Initial Fill Water (81)	tional Losses (82)	Storage Changes (83)	Water Supply (84)	Recrea- tion (85)	Total (86)
1961 1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1966 1967 1968 1969 1970	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1971 1972 1973 1974 1975	0 37 40,848 74,666 10,000	0 0 14,745 8,367 1,995	0 0 0 (4,925) (6,719)	0 1,275 51,812 102,198 189,526	0 0 0 0	1,312 107,405 180,306 194,802	2,444 63,883 124,461 160,860 93,352	133 6,557 16,995 12,702 23,008	0 (6,405) 4,029 (4,146) 7,704	0 71,991 155,317 209,172 374,306	0 6,481 1,075 2,064 3,288	2,577 142,507 301,877 380,652 501,658
1976 1977 1978 1979 1980	4,168 0 14,820 12,302 0	5,180 8,082 3,754 5,620 9,468	(9,182) (5,235) 21,686 (27,107) 12,714	235,711 101,137 373,636 356,854 395,975	23 469 481 485 742	235,900 104,453 414,377 348,154 418,899	56,954 0 45,105 0	15,845 4,407 9,061 25,355 24,576	(136,116) (98,685) 52,774 (18,781) (140,168)	420,708 122,447 171,139 145,598 165,931	1,429 (20) 176 0 481	358,820 28,149 278,255 152,172 50,820
1981 1982 1983 1984 1985	0 0 0 0	8,401 6,012 8,597 12,861 14,325	(23,448) 44,469 5,188 (850) (8,791)	569,088 399,799 230,277 250,938 349,336	807 1,798 1,078 1,414 956	554,848 452,078 245,140 264,363 355,826	0 0 0 0	15,254 23,824 23,601 12,461 28,257	59,637 61,685 (74,308) (138,146) 142,219	283,264 360,878 166,995 272,101 403,097	3,179 2,126 6,111 3,750 3,728	361,334 448,513 122,399 150,166 577,301
1986 1987 1988 1989 1990	0 0 0 0	9,486 7,919 11,090 13,116 13,439	8,339 (11,331) 2,238 (5,487) (4,622)	392,650 365,451 499,285 658,730 728,723	1,378 1,118 861 1,301 1,281	411,853 363,157 513,474 667,660 738,821	0 0 0 0	22,387 18,164 20,885 28,925 34,778	25,288 (10,252) (30,848) (40,463) (9,176)	393,203 433,452 507,169 611,681 791,355	1,777 5,698 3,389 6,083 7,491	442,655 447,062 500,595 606,226 824,448
1991 1992 1993 1994 1995	0 0 0 0	10,836 9,157 5,602 10,915 11,268	18,308 (9,084) 5,593 (11,045) 2,331	161,032 328,354 244,678 393,690 320,978	340 371 364 357 358	190,516 328,798 256,237 393,917 334,935	0 0 0 0	16,323 8,200 2,668 17,831 21,506	70,754 (75,008) (124,283) (91,606) 14,330	263,909 435,661 451,263 490,819 157,629	4,166 1,572 1,233 2,488 1,242	355,152 370,425 330,881 419,532 194,707
1996 1997 1998 1999 2000	0 0 0 0	10,503 10,040 10,160 8,460 8,466	12,008 719 (383) (22,328) 4,719	314,015 812,686 915,100 1,085,130 1,213,800	494 1,250 1,250 1,250 1,250	337,020 824,695 926,127 1,072,512 1,228,235	0 0 0 0	29,954 17,365 17,385 14,032 14,761	27,344 (4,496) 4,537 (158,906) 114,418	287,322 316,049 344,000 553,680 466,449	2,303 5,380 5,380 5,380 5,380	346,923 334,298 371,302 414,186 601,008
2001 2002 2003 2004 2005	0 0 0 0	8,448 8,448 8,408 8,467 8,442	(5,772) 5,244 3,292 481 (4,031)	1,234,235 1,101,195 1,102,195 1,102,695 1,103,195	1,250 1,250 1,250 1,250 1,250	1,238,161 1,116,137 1,115,145 1,112,893 1,108,856	0 0 0 0	14,457 15,049 15,033 15,002 14,958	65,133 (9,785) 4,080 (14,168) 8,610	395,612 1,169,405 1,169,405 1,169,405 1,169,405	5,380 5,380 5,380 5,380 5,380	480,582 1,180,049 1,193,898 1,175,619 1,198,353
2006 2007 2008 2009 2010	0 0 0 0	8,452 8,432 8,451 8,448 8,462	4,347 (2,500) 1,799 (3,471) (914)	1,103,695 1,113,495 1,113,495 1,113,495 1,113,495	1,250 1,250 1,250 1,250 1,250	1,117,744 1,120,677 1,124,995 1,119,722 1,122,293	0 0 0 0	15,041 14,982 14,913 15,027 15,036	5,221 (18,245) 12,211 4,227 (2,950)	1,169,405 1,169,405 1,169,405 1,169,405 1,169,405	5,380 5,380 5,380 5,380 5,380	1,195,047 1,171,522 1,201,909 1,194,039 1,186,871
2011 2012 2013 2014 2015	0 0 0 0	8,456 8,456 8,453 8,458 8,426	1,241 2,225 1,663 2,123 (8,435)	1,113,495 1,113,495 1,113,495 1,113,495 1,113,495	1,250 1,250 1,250 1,250 1,250	1,124,442 1,125,426 1,124,861 1,125,326 1,114,736	0 0 0 0	15,026 15,056 15,069 15,000 15,039	4,496 1,528 (2,693) (3,944) 2,879	1,169,405 1,169,405 1,169,405 1,169,405 1,169,405	5,380 5,380 5,380 5,380 5,380	1,194,307 1,191,369 1,187,161 1,185,841 1,192,703
2016 2017 2018 2019 2020	0 0 0 0	8,423 8,411 8,445 8,463 8,405	4,804 (2,801) 2,941 309 (4,072)	1,113,495 1,113,495 1,113,495 1,113,495 1,113,495	1,250 1,250 1,250 1,250 1,250	1,127,972 1,120,355 1,126,131 1,123,517 1,119,078	0 0 0 0	15,035 15,061 15,048 15,046 15,026	2,235 1,135 (2,883) 760 (972)	1,169,405 1,169,405 1,169,405 1,169,405 1,169,405	5,380 5,380 5,380 5,380 5,380	1,192,055 1,190,981 1,186,950 1,190,591 1,188,839
2021 2022 2023 2024 2025	0 0 0 0	8,455 8,482 8,414 8,463 8,463	4,752 (5,840) 3,678 (3,238) 3,416	1,113,495 1,113,495 1,113,495 1,113,495 1,113,495	1,250 1,250 1,250 1,250 1,250	1,127,952 1,117,387 1,126,837 1,119,970 1,126,624	0 0 0 0	15,034 15,045 15,017 15,018 15,046	420 (243) (1,980) 624 3,615	1,169,405 1,169,405 1,169,405 1,169,405 1,169,405	5,380 5,380 5,380 5,380 5,380	1,190,239 1,189,587 1,187,822 1,190,427 1,193,446
2026 2027 2028 2029 2030	0 0 0 0	8,431 8,452 8,458 8,468 8,471	(1,792) (443) (5,187) 7,439 4,083	1,113,495 1,113,495 1,113,495 1,113,495 1,113,495	1,250 1,250 1,250 1,250 1,250	1,121,384 1,122,754 1,118,016 1,130,652 1,127,299	0 0 0 0	15,061 15,052 15,004 15,030 14,988	1,333 (3,332) (736) 1,345 (17,111)	1,169,405 1,169,405 1,169,405 1,169,405 1,169,405	5,380 5,380 5,380 5,380 5,380	1,191,179 1,186,505 1,189,053 1,191,160 1,172,662
2031 2032 2033 2034 2035	0 0 0 0	8,447 8,413 8,453 8,463 8,464	(9,004) 1,970 719 2,279 6,317	1,113,495 1,113,495 1,113,495 1,113,495 1,113,495	1,250 1,250 1,250 1,250 1,250	1,114,188 1,125,128 1,123,917 1,125,487 1,129,526	0 0 0 0	14,898 15,016 15,057 15,052 14,937	10,806 6,263 215 1,091 (24,771)	1,169,405 1,169,405 1,169,405 1,169,405 1,169,405	5,380 5,380 5,380 5,380 5,380	1,200,489 1,196,064 1,190,057 1,190,928 1,164,951

### Annual Water Quantities Conveyed through Each Pumping and Power Recovery Plant of Project Transportation Facilities (Acre-Feet)

Sheet 8 of 9

	(ACre-Feet) Sheet 8 of 9  California Aqueduct (continued)											
							a Aqueduct (					
			Warne Po	owerplant					Castaic P	owerplant		
	Initial Fill	Opera- tional	Reservoir Storage	Delive Water	eries Recrea-		Initial Fill	Opera- tional	Reservoir Storage	Deliv Water	eries Recrea-	
Calendar	Water	Losses	Changes	Supply	tion	Total	Water	Losses	Changes	Supply	tion	Total
Year	(87)	(88)	(89)	(90)	(91)	(92)	(93)	(94)	(95)	(96)	(97)	(98)
1961 1962	0	0	0	0	0	0	0	0	0	0	0	0
1963 1964	0 0	0 0	0 0	0	0 0	0 0	0	0 0	0 0	0 0	0 0	0 0
1965	0	0	0	0	0	0	0	0	0	0	0	0
1966 1967	0	0	0	0	0	0	0	0	0	0	0	0
1968 1969	0	0	0	0	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0	0	0	0	0
1971 1972 1973	0	0	0	0	0	0	57,364 37,198	1,788 6,430	(6,162) 4,542	71,938 155,297	6,481 1,075	131,409 204,542
1974 1975	0	0	0	0	0	0	82,364 90,460	1,772 5,002	(950) (1,534)	209,136 374,280	541 1,563	292,863 469,771
1976	0	0	0	0	0	0	55,990	(7,695)	(132,036)	420,684	1,429	338,372
1977 1978	0	0	0	0	0	0	0 45,105	(1,485) (2,264)	(102,532) 129,523	122,447 171,139	(20) 176	18,410 343,679
1979 1980	0 0	0	0	0 0	0	0	0	(2,339) 991	(20,400) (118,026)	145,598 165,931	0 481	122,859 49,377
1981	0	0	0	0	0	0	0	(44,416)	47,244	283,264	2,704	288,796
1982 1983	0	24,468 20,780	61,169 (74,308)	360,878 166,995	2,126 6,111	448,641 119,578	0	(60,135) (33,418)	59,069 (46,904)	360,878 166,995	1,187 2,618	360,999 89,291
1984 1985	0	13,572 29,286	(139,219) 141,492	275,212 403,097	2,208 874	151,773 574,749	0 0	(29,618) (4,622)	(139,545) 135,007	275,212 403,097	2,201 844	108,250 534,326
1986 1987	0	21,579 20,885	25,288 (10,252)	393,203 433,452	1,777 5,698	441,847 449,783	0	(6,664) (519)	21,520 (6,241)	393,203 433,452	623 2,734	408,682 429,426
1988	0	23,253 27,131	(31,453) (40,463)	507,169	3,389 6,083	502,358 604,432	0	12,650 634	(28,498) (40,154)	507,169	1,359	492,680
1989 1990	0	34,208	(9,176)	611,681 791,355	7,491	823,878	0 0	(14,012)	(1,501)	611,681 786,519	3,161 3,419	575,322 774,425
1991 1992	0	16,908 9,638	70,754 (75,008)	263,909 435,661	4,166 1,572	355,737 371,863	0	(871) (609)	89,637 (71,795)	262,921 435,661	2,283 1,543	353,970 364,800
1993 1994	0	1,922 23,151	(124,283) (91,606)	451,257 490,819	1,233 2,488	330,129 424,852	0	21,959 5,205	(77,428) (95,738)	451,257 490,819	1,211 2,465	396,999 402,751
1995	ő	15,860	14,330	157,629	1,242	189,061	ő	20,400	75,863	157,629	1,223	255,115
1996 1997	0	21,326 15,455	27,042 (4,496)	287,322 316,049	2,303 5,380	337,993 332,388	0	(5,486) 9,734	22,006 (2,496)	287,322 311,049	2,302 2,330	306,144 320,617
1998 1999	0	15,475 12,122	4,537 (158,906)	344,000 553,680	5,380 5,380	369,392 412,276	0	9,750 5,834	4,537 (163,808)	339,000 548,680	2,330 2,330	355,617 393,036
2000	0	12,851	114,418	466,449	5,380	599,098	0	6,566	114,418	461,449	2,330	584,763
2001 2002	0	12,547 13,139	65,133 (9,785)	395,612 1,169,405	5,380 5,380	478,672 1,178,139	0	6,262 6,854	65,133 (9,785)	390,612 1,164,405	2,330 2,330	464,337 1,163,804
2003 2004 2005	0 0 0	13,123 13,092	4,080 (14,168)	1,169,405 1,169,405	5,380 5,380 5,380	1,191,988 1,173,709	0 0 0	6,838 6,807	4,080 (14,168)	1,164,405 1,164,405 1,164,405	2,330 2,330 2,330	1,177,653 1,159,374
2005	0	13,048 13,131	8,610 5,221	1,169,405 1,169,405	5,380	1,196,443 1,193,137	0	6,763 6,846	8,610 5,221	1,164,405	2,330	1,182,108 1,178,802
2007 2008	0	13,072 13,003	(18,245) 12,211	1,169,405 1,169,405	5,380 5,380 5,380	1,169,612 1,199,999	0	6,787 6,718	(18,245) 12,211	1,164,405 1,164,405	2,330 2,330 2,330	1,175,602 1,155,277 1,185,664
2009 2010	0	13,117 13,126	4,227 (2,950)	1,169,405 1,169,405	5,380 5,380	1,192,129 1,184,961	0	6,832 6,841	4,227 (2,950)	1,164,405 1,164,405	2,330 2,330	1,177,794 1,170,626
2011	0	13,116	4,496	1,169,405	5,380	1,192,397	0	6,831	4,496	1,164,405	2,330	1,178,062
2012 2013	0	13,146 13,159	1,528 (2,693)	1,169,405 1,169,405	5,380 5,380	1,189,459 1,185,251	0	6,861 6,874	1,528 (2,693)	1,164,405 1,164,405	2,330 2,330	1,175,124 1,170,916
2014 2015	0 0	13,090 13,129	(3,944) 2,879	1,169,405 1,169,405	5,380 5,380	1,183,931 1,190,793	0 0	6,805 6,844	(3,944) 2,879	1,164,405 1,164,405	2,330 2,330	1,169,596 1,176,458
2016	0	13,125	2,235	1,169,405	5,380	1,190,145	0	6,840	2,235	1,164,405	2,330	1,175,810
2017 2018	0	13,151 13,138	1,135 (2,883)	1,169,405 1,169,405	5,380 5,380	1,189,071 1,185,040	0	6,866 6,853	1,135 (2,883)	1,164,405 1,164,405	2,330 2,330	1,174,736 1,170,705
2019 2020	0 0	13,136 13,116	760 (972)	1,169,405 1,169,405	5,380 5,380	1,188,681 1,186,929	0 0	6,851 6,831	760 (972)	1,164,405 1,164,405	2,330 2,330	1,174,346 1,172,594
2021 2022	0	13,124 13,135	420 (243)	1,169,405 1,169,405	5,380 5,380	1,188,329 1,187,677	0	6,839 6,850	420 (243)	1,164,405 1,164,405	2,330 2,330	1,173,994 1,173,342
2022 2023 2024	0	13,107 13,108	(1,980) 624	1,169,405 1,169,405 1,169,405	5,380 5,380 5,380	1,185,912 1,188,517	0	6,822 6,823	(1,980) 624	1,164,405 1,164,405 1,164,405	2,330 2,330 2,330	1,173,342 1,171,577 1,174,182
2025	0	13,136	3,615	1,169,405	5,380	1,191,536	0	6,851	3,615	1,164,405	2,330	1,177,201
2026 2027	0	13,151 13,142	1,333 (3,332)	1,169,405 1,169,405	5,380 5,380	1,189,269 1,184,595	0 0	6,866 6,857	1,333 (3,332)	1,164,405 1,164,405	2,330 2,330	1,174,934 1,170,260
2028 2029	0	13,094 13,120	(736) 1,345	1,169,405 1,169,405	5,380 5,380	1,187,143 1,189,250	0	6,809 6,835	(736) 1,345	1,164,405 1,164,405	2,330 2,330	1,172,808 1,174,915
2030	0	13,078	(17,111)	1,169,405	5,380	1,170,752	0	6,793	(17,111)	1,164,405	2,330	1,156,417
2031 2032	0	12,988 13,106	10,806 6,263	1,169,405 1,169,405	5,380 5,380	1,198,579 1,194,154	0	6,703 6,821	10,806 6,263	1,164,405 1,164,405	2,330 2,330	1,184,244 1,179,819
2033 2034	0	13,147 13,142	215 1,091	1,169,405 1,169,405	5,380 5,380	1,188,147 1,189,018	0	6,862 6,857	215 1,091	1,164,405 1,164,405	2,330 2,330	1,173,812 1,174,683
2035	0	13,027	(24,771)	1,169,405	5,380	1,163,041	0	6,742	(24,771)	1,164,405	2,330	1,148,706

### Annual Water Quantities Conveyed through Each Pumping and Power Recovery Plant of Project Transportation Facilities (Acre-Feet) Sheet 9 of 9

	(ACIE-FEEL) Sheet 9 of 9  California Aqueduct (continued)											
				anch, California								
	Las Pe	erillas and Bado	ger Hill Pumping Pla	·		Bluestone, and Po Pumping Plants	Ionio Pass					
Calendar Year	Initial Fill Water (99)	Operational Losses (100)	Water Supply (101)	Total (102)	Operational Losses (103)	Water Supply (104)	Total (105)					
1961 1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0					
1966 1967 1968 1969 1970	0 0 210 0	0 0 873 1,042 638	0 0 79,039 62,064 83,649	0 0 80,122 63,106 84,287	0 0 0 0	0 0 0 0	0 0 0 0					
1971 1972 1973 1974 1975	0 0 0 0	3,455 1,745 5,479 7,344 5,819	110,971 121,755 78,645 78,174 85,216	114,426 123,500 84,124 85,518 91,035	0 0 0 0	0 0 0 0	0 0 0 0					
1976 1977 1978 1979 1980	0 0 0 0	6,562 5,777 9,085 10,896 9,449	90,058 40,579 92,604 123,155 111,379	96,620 46,356 101,689 134,051 120,828	0 0 0 0	0 0 0 0	0 0 0 0					
1981 1982 1983 1984 1985	0 0 0 0	13,232 7,984 5,710 5,740 7,563	109,754 95,776 100,518 126,387 120,823	122,986 103,760 106,228 132,127 128,386	0 0 0 0	0 0 0 0	0 0 0 0					
1986 1987 1988 1989 1990	0 0 0 0	8,562 11,363 12,831 11,454 13,022	131,599 128,080 120,969 116,801 109,802	140,161 139,443 133,800 128,255 122,824	0 0 0 0	0 0 0 0	0 0 0 0					
1991 1992 1993 1994 1995	0 0 0 0	5,802 7,893 9,282 8,414 6,979	1,496 79,635 94,921 87,158 94,536	7,298 87,528 104,203 95,572 101,515	0 0 0 0	0 0 0 0	0 0 0 0					
1996 1997 1998 1999 2000	0 0 0 0	9,663 802 802 802 802	114,630 149,871 149,799 156,357 156,418	124,293 150,673 150,601 157,159 157,220	0 212 212 212 212 212	0 44,871 44,799 51,357 51,418	0 45,083 45,011 51,569 51,630					
2001 2002 2003 2004 2005	0 0 0 0	802 802 802 802 802	156,475 176,271 176,271 176,271 176,271	157,277 177,073 177,073 177,073 177,073	212 212 212 212 212 212	51,475 70,486 70,486 70,486 70,486	51,687 70,698 70,698 70,698 70,698					
2006 2007 2008 2009 2010	0 0 0 0	802 802 802 802 802	176,271 176,271 176,271 176,271 176,271	177,073 177,073 177,073 177,073 177,073	212 212 212 212 212 212	70,486 70,486 70,486 70,486 70,486	70,698 70,698 70,698 70,698 70,698					
2011 2012 2013 2014 2015	0 0 0 0	802 802 802 802 802	176,271 176,271 176,271 176,271 176,271	177,073 177,073 177,073 177,073 177,073	212 212 212 212 212 212	70,486 70,486 70,486 70,486 70,486	70,698 70,698 70,698 70,698 70,698					
2016 2017 2018 2019 2020	0 0 0 0	802 802 802 802 802	176,271 176,271 176,271 176,271 176,271	177,073 177,073 177,073 177,073 177,073	212 212 212 212 212 212	70,486 70,486 70,486 70,486 70,486	70,698 70,698 70,698 70,698 70,698					
2021 2022 2023 2024 2025	0 0 0 0	802 802 802 802 802	176,271 176,271 176,271 176,271 176,271	177,073 177,073 177,073 177,073 177,073	212 212 212 212 212 212	70,486 70,486 70,486 70,486 70,486	70,698 70,698 70,698 70,698 70,698					
2026 2027 2028 2029 2030	0 0 0 0	802 802 802 802 802	176,271 176,271 176,271 176,271 176,271	177,073 177,073 177,073 177,073 177,073	212 212 212 212 212 212	70,486 70,486 70,486 70,486 70,486	70,698 70,698 70,698 70,698 70,698					
2031 2032 2033 2034 2035	0 0 0 0	802 802 802 802 802	176,271 176,271 176,271 176,271 176,271	177,073 177,073 177,073 177,073 177,073	212 212 212 212 212 212	70,486 70,486 70,486 70,486 70,486	70,698 70,698 70,698 70,698 70,698					

TABLE B-7 Reconciliation of Capital Costs Allocated to Water Supply and Power Generation

(Thousands of Dollars)

	Miscellaneous Income Credited to Construction (a	<u> </u>	Costs of Construction of Delivery	Costs of Requested Excess Capacity and Future Enlargement (d	Capital Cost Component of Delta Water	Capital Cost Component of Transportatio n Water Charge (f	Water Supply and Power Total		Total State Water Project Capital Cost
Item	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Conservation Facilities									
Upper Feather Division Frenchman Dam & Lake Grizzly Valley Dam & Lake Davis Antelope Dam & Lake Abbey Bridge Dam & Reservoir Dixie Refuge Dam & Reservoir Total, Upper Feather Division	153 55 1 0 0 209	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	603 39 0 0 0 642	0 0 0 0 0	756 94 1 0 0 851	2,887 7,379 5,532 519 236 16,553	3,643 7,473 5,533 519 236 17,404
Oroville Division Multipurpose Facilities Specific Power Facilities Total, Oroville Division	5,149 379 5,528	0 3 3	0 0 0	0 0 0	373,256 95,972 469,228	0 0 0	378,405 96,354 474,759	88,730 611 89,341	467,135 96,965 564,100
California Aqueduct North San Joaquin Division San Luis Division Total, California Aqueduct	228 7,613 7,841	12 1 13	0 0 0	0 0 0	80,742 105,145 185,887	0 0 0	80,982 112,759 193,741	2,889 4,564 7,453	83,871 117,323 201,194
Delta Facilities	20,836	6,240	0	0	306,639	0	333,715	45,588	379,303
Planning and Pre-operation	(74)	5,187	0	0	130,559	0	135,672	0	135,672
Total, Conservation Facilities	34,340	11,443	0	0	1,092,955	0	1,138,738	158,935	1,297,673
Transportation Facilities									
Upper Feather Division Grizzly Valley Pipeline	0	0	181	0	0	341	522	0	522
North Bay Aqueduct	570	13	676	0	0	94,929	96,188	0	96,188
South Bay Aqueduct	2,048	1	1,594	0	0	55,007	58,650	21,691	80,341
California Aqueduct North San Joaquin Division San Luis Division South San Joaquin Division Tehachapi Division Mojave Division Santa Ana Division West Branch Coastal Branch Total, California Aqueduct	506 4,678 748 (73) 1,811 4,659 36,044 7,223 55,596	29 2 1 6 2 10 67 48 165	51 0 3,343 0 704 5,810 522 76 10,506	0 0 2,093 5,230 0 5,331 37 0 12,691	0 0 0 0 0 0	180,382 119,514 282,761 302,132 352,104 201,360 470,030 454,727 2,363,010	180,968 124,194 288,946 307,295 354,621 217,170 506,700 462,074 2,441,968	6,430 7,240 16,594 18,195 37,050 31,476 33,449 0	187,398 131,434 305,540 325,490 391,671 248,646 540,149 462,074 2,592,402
Total, Transportation Facilities	58,214	179	12,957	12,691	0	2,513,287	2,597,328	172,125	2,769,453
East Branch Enlargements	0	0	0	0	0	453,041	453,041	0	453,041
East Branch Extension	0	0	0	0	0	51,240	51,240	0	51,240
Coastal Branch Extension	0	0	0	0	0	26,035	26,035	0	26,035
San Joaquin Drainage Facilities	0	0	0	0	0	0	0	93,068	93,068
Off-Aqueduct Power Generation Facilities	0	0	0	0	0	458,215	458,215	0	458,215
Small Hydro Power Generation Facilities	0	0	0	0	14,103	72,426	86,529	0	86,529
Land Purchase-Kern Water Bank	0	0	0	0	34,686	0	34,686	0	34,686
Unassigned / Miscellaneous	0	0	0	0	0	0	0	265	265
Davis-Grunsky	0	1,411	0	0	0	0	1,411	128,589	130,000
Total through 2010	92,554	13,033	12,957	12,691	1,141,744	3,574,244	4,847,223	552,982	5,400,205

a) Miscellaneous project receipts that are applied for accounting purposes to reduce the capital costs of the particular facilities.
b) These allowances are included for planning the future financial program, but not for determining current water charges. The costs shown in this appendix are based on prices prevailing on December 31, 1995.
c) See Table B-8.
d) See Table B-9.

a) See Table B-13. A portion of these costs will be offset by power generation sales and credits. Planning and Pre-operations line item includes \$47,644,000 of planning costs financed from Systems Revenues and not included in Table 15-3. Oroville Division total reduced by \$14,103,000 for costs included under Small Hydro. CALFED Program costs totaling \$9,000,000 are not included in Table B-7, but are included in Table 15-3.
 f) See Table B-10. Mojave Division total reduced by \$72,426,000 for costs included under Small Hydro.

TABLE B-8 State Water Project Capital Costs of Requested Delivery Structures

(Dollars)

T	1	(Dolla					ı
Project Service Area				Capital Costs (a			
and	1952-1994	1995	1996	1997	1998	1999	Total
Water Supply Contractor	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Feather River Area							
County of Butte Plumas County Flood Control and	135,019	1,527	0	0	0	0	136,546
Water Conservation District	645	0	0	0	0	0	645
Thermalito Irrigation District (b	43,939	0	0	0	0	0	43,939
Subtotal	179,603	1,527	0	0	0	0	181,130
North Bay Area							
Napa County Flood Control and Water							
Conservation District Solano County Water Agency	13,590 662,113	0 0	0 0	0 0	0 0	0 0	13,590 662,113
Subtotal	675,703	0	0	0	0	0	675,703
South Bay Area							
Alameda County Flood Control and Water							
Conservation District, Zone 7	248,329	1,996	801	20,000	0	0	271,126
Alameda County Water District	232,484	0	0	0	Ō	Ō	232,484
Santa Clara Valley Water District San Francisco Water Department (b	21,500 1,043,262	0 15,307	0 3,935	0 3,700	0	0 3,170	21,500 1,069,374
Subtotal	1,545,575	17,303	4,736	23,700	0	3,170	1,594,484
Central Coastal Area	1,545,575	17,303	4,730	23,700	U	3,170	1,554,464
Central Coastal Area							
San Luis Obispo County Flood Control	7,000	2.402	0	0	0	0	0.400
and Water Conservation District Santa Barbara County Flood Control	7,000	2,192	U	0	U	U	9,192
and Water Conservation District	65,000	2,058	0	0	0	0	67,058
Subtotal	72,000	4,250	0	0	0	0	76,250
San Joaquin Valley Area							
Castaic Lake Water Agency	82,567	0	0	0	0	0	82,567
Dudley Ridge Water District	289,412	0	8,619	10,000	0	Ō	308,031
Empire West Side Irrigation District	6,358	0	0	0	0	0	6,358
Green Valley Water District (c Kern County Water Agency	5,292 2,738,334	0 6,875	0 1,761	0 4,000	0 0	0	5,292 2,750,970
Oak Flat Water District	46,882	0,073	0	0	0	0	46,882
Tracy Golf and Country Club (c	1,028	0	0	0	0	0	1,028
Tulare Lake Basin Water Storage District	277,483	0	0	0	0	0	277,483
Veterans Administration Cemetery (b	3,342	0	0	0	0	0	3,342
Subtotal	3,450,698	6,875	10,380	14,000	0	0	3,481,953
Southern California Area							
Antelope Valley-East Kern Water Agency	374,323	10,427	0	0	0	0	384,750
Castaic Lake Water Agency	354,745	0	Q	0	Ō	0	354,745
Coachella Valley Water District	14,206	0	0	0	0	0	14,206
Crestline-Lake Arrowhead Water Agency Desert Water Agency	12,097 23,438	8,957 0	4,042 0	4,000 0	0 0	0	29,096 23,438
Littlerock Creek Irrigation District	23,732	0	0	0	0	0	23,436
Mojave Water Agency	141,998	31,308	18,397	2,950	0	0	194,653
Palmdale Water District	34,173	0	0	0	0	0	34,173
San Bernardino Valley Municipal Water District	801,669	0	0	0	0	0	801,669
San Gabriel Valley Municipal Water District	131,052	0	0	0	0	0	131,052
San Gorgonio Pass Water Agency	66,530	ŏ	ŏ	ŏ	ŏ	ŏ	66,530
Metropolitan Water District of	4,788,494	8,341	7,485	6,000	0	0	4,810,320
Southern California Ventura County Flood Control District	79,699	0	0	0	0	0	79,699
Subtotal	6,846,156	59,033	29,924	12,950	0	0	6,948,063
Total	12,697,735	84,738	45,040	50,650	0	3,170	12,957,583
·	,001,100	5 7,7 50	.5,5-10	55,000	•	0,170	,557,550

a) Approximate only, not to be construed as invoice amounts.
 b) Not a SWP water supply contractor.
 c) Not a SWP water supply contractor, but has contracted for water.

TABLE B-9 **Capital Costs of Requested Excess Peaking Capacity** 

(Dollars)

Sheet 1 of 2

			(Dollars)			Sheet 1 of 2
	Total Advance Payments and Credits for Excess	Total Incremental Costs for Excess	Overpayment (+) or Underpayment (-)	Fund Inte	Money Investment erest Rate b	Net Over or Underpayment with Interest
Calendar	Capacity	Capacity	(a	January-June	July-December	(C
Year			•	•	-	,
rear	(1)	(2)	(3)	(4)	(5)	(6)
		Metrop	olitan Water Distri	ct Of Southern Ca	lifornia	
1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980	0 8,056,000 9,094,963 1,523,252 8,310,651 3,426,736 1,086,045 (4,244,807) (15,913,829) 0 0 0	158,000 435,800 1,878,270 2,887,351 3,059,310 2,397,102 1,146,648 487,394 25,041 37,775 2,085 0 0	(158,000) 7,620,200 7,216,693 (1,364,099) 5,251,341 1,029,634 (60,603) (4,732,201) (15,938,870) (37,775) (2,085) 0 0 0	3.968% 4.540% 4.815% 5.330% 5.946% 7.071% 6.154% 4.477% 6.023% 9.222% 7.089% 6.048% 5.788% 7.171% 8.979%	4.184% 5.057% 4.744% 5.540% 6.389% 7.125% 5.580% 4.977% 8.717% 6.791% 6.021% 6.182% 8.096% 9.671% 11.500%	(163,412) 7,701,103 15,524,533 14,959,187 21,369,973 23,986,083 25,238,017 21,532,965 6,014,116 6,576,393 7,038,515 7,469,662 7,923,403 8,539,736 9,354,605 10,461,314
Total	11,339,011	12,514,776	(1,175,765)	_	-	10,461,314
		Sar	n Gabriel Valley Mu	ınicipal Water Dis	trict	
1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980	0 184,422 49,052 44,911 61,588 (20,263) (180,465) 0 0 0 0	25,730 44,053 38,075 17,959 5,900 6,835 0 0 0 0 0 0	(25,730) 140,369 10,977 26,952 55,688 (27,098) (180,465) 0 0 0	4.815% 5.330% 5.946% 7.071% 5.154% 4.477% 6.023% 9.222% 7.089% 6.048% 5.788% 7.171% 8.979% 11.500%	4.744% 5.540% 6.389% 7.125% 5.580% 4.977% 8.717% 10.351% 6.791% 6.021% 6.182% 8.096% 9.671% 11.500%	(26,611) 117,587 136,751 175,186 242,927 226,230 49,198 54,130 57,952 61,501 65,237 70,312 77,021 86,133
Total	139,245	138,552	693	-	-	86,133
		Aı	ntelope Valley-East	Kern Water Agen	ісу	
1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980	85,495 52,625 101,648 34,062 (12,794) (205,354) 0 0 0 0 0	1,645 6,326 15,076 11,748 2,018 308 96 0 190 0	83,850 46,299 86,572 22,314 (14,812) (205,662) (96) 0 (190) 0 0	5.330% 5.946% 7.071% 5.154% 4.477% 6.023% 9.222% 7.089% 6.048% 5.788% 7.171% 8.979%	5.540% 6.389% 7.125% 5.580% 4.977% 8.717% 6.791% 6.021% 6.182% 8.096% 9.671% 11.500%	86,962 140,964 243,222 279,673 277,552 77,288 84,933 90,929 96,300 102,150 110,096 120,601 134,869
Total	55,682	37,407	18,275	-	-	134,869

a) Overpayment or underpayment for each calendar year - column (1) minus column (2).
b) Interest rates shown are annual rates. Interest is credited daily at applicable rates on funds deposited in the State's Surplus Money Investment Fund.
c) Amounts shown are end-of-year balances. Interest on overpayments is credited at applicable Surplus Money Investment Fund Interest Rates shown in columns (4) and (5). Interest on underpayments is charged at the 1980 Project Interest Rate of 4.584 percent.

TABLE B-9 **Capital Costs of Requested Excess Peaking Capacity** 

(Dollars) Sheet 2 of 2

	1					· -	(Dollars)							Sheet 2 of 2
				1.		nnual Requi			alametr :: V					
	1005	1000	1007			osts and Ad					1075	1076	1001	Reach
Reach Number	1965 (7)	1966 (8)	1967 (9)	1968 (10)	1969 (11)	1970 (12)	1971 (13)	1972 (14)	1973 (15)	1974 (16)	1975 (17)	1976 (18)	1981 (19)	Total (20)
Number	(7)	(0)	(9)	(10)	(11)	(12)	(13)	(14)	(13)	(10)	(17)	(10)	(19)	(20)
					Metropolita	an Water D	istrict Of S	Southern C	alifornia					
00		4 000	1.000			Incre	mental Cos	sts						2.000
8C 8D 9		1,000 43,500 27,000	1,000 43,500 27,000	13,500										2,000 87,000 67,500
10A 11B	10,100	29,700 18,300	29,700 18,300	14,800 9,200										74,200 55,900
12D 12E	1,800 1,800	10,500	19,300 12,400	25,800 18,800	12,900 10,800									59,800 43,800
13B 14A	2,500	500	12,400 12,600 11,100	37,800 80,216	31,600 107,504	124,069	37,519	6,413	381	87				82,000 370,289
14B 14C	1,200 1,800	1,800 900	11,100	19,100 13,500	19,100 13,500	12,800 9,000	07,010	0,410	001	01				54,000 38,700
15A	700 700	300	14,000	66,947 137,894	133,357	128,099 211,608	54,821 133,927	5,327 26,203	946 5,767	2,076 6,156				406,273
16A 17E 17F	109,100	51,500 261,600	18,900 444,600 261,600	537,247 261,600	182,000 860,024 261,600	998,985 239,500	699,281	193,286	17,947	29,456	2,085			723,155 3,834,411 1,395,000
25 28J	100,100	304,612	964,270 13,706	1,650,947 296,668	1,426,925 65,966	673,041 230,169	221,100 1,209,586	256,165 2,017,134	235,900	4,900				5,192,448 4,378,641
Total	129,700		1,891,976	3,184,019	3,125,276	2,627,271	2,356,234	2,504,528	260,941	42,675	2,085			16,865,117
						Curre	ent Adjustm	ent						
8C through	1. Advance Pa	yments Appl	lied to Increm	ental Costs A	mendment 2	(d	•							
25	0	8,056,000	9,094,963	1,523,252	8,310,651	3,426,736	1,086,045	(4,244,807)	(14,381,396)				(356,668)	12,514,776
	2. Interest Cre	dits-Amendn	nent 2 (e						(1,532,433)				(10,104,646)	(11,637,079)
28J	3. Advance Pa	vments Appl	lied to Increm	ental Costs A	mendment 5	(f			( ) ,,				( -, - ,,	( ,== ,= =,
			1,483,180			1,729,160	3,215,258	2,967,475	1,690,000	(9,488,722)				4,378,641
	4. Interest Cre	dits-Amendn	nent 5 (g							/·				(
	5. Net Require	ed Advance o	of Funds							(2,721,803)				(2,721,803)
		9,296,000		3,992,577	7,383,616	5,155,896	4,301,303	(1,277,332)	(14,233,829)	(12,210,525)			(10,461,314)	2,524,535
					San Ga	briel Valle	y Municipa	l Water Dis	strict					
						Incre	emental Co	sts						
25			25,730	44,053	38,075	17,959	5,900	6,835						138,552
					Total Una	djusted Incre	mental Costs	for Past Pay	ments					
			25,730	44,053	38,075	17,959	5,900	6,835						138,552
						Currei	nt Adjustme	ents						
	1. Advance Pa	ayments App	lied to Increm	nental Costs (	d									
			0	184,422	49,052	44,911	61,588	(20,263)	(174,133)				(7,025)	138,552
	2. Interest Cre	edit												
									(6,332)				(79,108)	(85,440)
	<ol><li>Net Require</li></ol>	d Advance o											(h	
			0	184,422	49,052	44,911	61,588	(20,263)	(180,465)				(86,133)	53,112
					Antelo	pe Valley-		_	ncy					
						Incre	mental Cos	SIS						
29A 29F				1,645	6,326	13,376	10,048	2,018	308	96		190		34,007
29F					Total I Inc	1,700	1,700	for Doot Do						3,400
				1.645		djusted Incre			308	0.6		190		27 407
				1,645	6,326	15,076	11,748	2,018	308	96		190		37,407
	Current Adjustment  1. Advance Payments Applied to Incremental Costs (d													
				85,495	52,625	101,648	34,062	(12,794)	(189,120)	0		0	(34,509)	37,407
	2. Interest Cre							·	(16,234)				(100,360)	(116,594)
	3. Net Require	d Advance o	f Funds	85,495	52,625	101,648	34,062	(12,794)	(205,354)	0		0	(h (134,869)	(79,187)

d) Actual payments are shown for 1965 through 1976 with 1981 adjusted to reflect overpayments and underpayments without interest for prior years.
e) Interest for overpayments and underpayments under provisions of Amendment 2 of the contract.
f) Actual payments are shown for 1965 through 1973 with 1974 adjusted to reflect overpayments and underpayments without interest for prior years.
g) Interest for overpayments and underpayments under provisions of Amendment 5 of the contract.
h) Amounts in excess of incremental costs, under the provisions of the contract, reduce the Transportation Charge capital cost component of the Agency's Statement of Charges for January 1981.

TABLE B-10

# Capital Costs of Each Aqueduct Reach to Be Reimbursed through Capital Cost Component of Transportation Charge (Dollars)

Sheet 1 of 8

					(Dollars	,				Sheet 1 of 8	
	Upper Feather River		No	orth Bay Aqueo	duct		South Bay Aqueduct				
Calendar Year	Division (1)	Reach 1 (2)	Reach 2 (3)	Reach 3A (4)	Reach 3B (5)	Total (6)	Reach 1 (7)	Reach 2 (8)	Reach 4 (9)	Reach 5 (10)	
1952 1953 1954 1955	0 0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0 0	97 477 1,466 1,944	34 166 508 674	30 144 437 560	57 297 959 1,266	
1956 1957 1958 1959 1960	0 0 2 14 28	0 13,290 19,202 7,517 8,797	0 3,391 5,011 2,118 4,292	0 0 0 0	0 9,953 25,798 17,653 4,838	0 26,634 50,011 27,288 17,927	18,789 45,090 195,985 496,140 1,130,378	6,515 15,639 80,961 148,516 67,351	5,090 12,285 7,714 24,945 71,779	12,545 33,218 21,930 17,118 68,028	
1961 1962 1963 1964 1965	10 32 51 7,791 3,139	1,551 217 2,510 39,879 72,793	10,318 (1,751) (1,063) 12,046 17,900	0 0 0 0	2,526 414 983 21,934 170,361	14,395 (1,120) 2,430 73,859 261,054	3,273,247 1,548,884 480,716 2,549,118 807,505	180,596 203,535 69,182 15,903 153,454	307,885 695,446 2,284,291 181,900 85,425	74,398 35,102 206,587 264,410 447,830	
1966 1967 1968 1969 1970	(48) 47 51,573 234,232 16,227	59,615 47,257 70,586 63,650 59,090	12,972 11,597 19,560 23,628 42,733	0 0 0 0	438,949 1,551,023 831,158 46,428 9,415	511,536 1,609,877 921,304 133,706 111,238	898,074 607,614 965,119 455,173 52,481	149,529 50,423 19,543 9,618 3,380	142,096 293,304 89,300 3,860 10,517	1,690,200 3,496,284 2,931,101 896,727 154,358	
1971 1972 1973 1974 1975	27,204 9 25 45 21	20,819 15,538 18,488 67,352 62,855	31,516 12,952 29,018 29,978 73,112	0 0 0 0	8,480 10,058 39,878 134,332 45,091	60,815 38,548 87,384 231,662 181,058	24,505 26,918 24,468 17,108 57,619	4,645 825 4,010 1,192 561	5,035 2,945 6,016 1,765 1,165	20,395 26,090 12,708 65,587 7,291	
1976 1977 1978 1979 1980	51 28 38 23 26	52,419 53,274 61,936 316,620 422,804	75,611 65,662 57,158 91,367 111,600	218 2,240 2,955 3,953 19,910	13,168 23,138 28,987 62,240 96,125	141,416 144,314 151,036 474,180 650,439	104,242 176,062 264,581 111,106 368,942	2,846 3,625 4,494 17,151 17,708	8,915 3,225 3,668 8,515 8,249	12,701 16,158 14,028 31,725 38,045	
1981 1982 1983 1984 1985	34 11 19 26 29	430,992 934,812 1,091,091 1,875,968 2,248,491	147,295 357,720 1,076,627 2,317,661 7,849,886	(10,752) (7,165) 2,628 3,290 27,815	43,157 134,408 517,615 1,068,363 3,416,370	610,692 1,419,775 2,687,961 5,265,282 13,542,562	(145,428) (44,778) 429,225 506,951 34,103	3,600 18,971 73,925 36,354 2,822	6,533 7,451 38,185 9,610 5,034	12,448 37,824 72,415 92,846 27,138	
1986 1987 1988 1989 1990	31 32 55 45 63	16,420,238 11,873,774 3,293,768 1,057,778 493,680	10,020,277 7,214,307 1,648,286 950,991 537,881	1,309,599 1,628,902 1,016,901 271,820 215,818	1,819,349 1,670,596 690,697 375,800 71,873	29,569,463 22,387,579 6,649,652 2,656,389 1,319,252	85,732 126,377 329,513 139,876 252,547	14,715 15,693 36,748 16,911 29,949	17,144 27,881 51,790 35,610 97,813	13,982 32,931 26,344 12,973 38,675	
1991 1992 1993 1994 1995	54 42 30 14 3	76,662 56,898 104,341 69,633 38,280	17,130 6,636 24,591 13,735 7,946	29,827 32,115 103,528 118,070 50,862	70,608 38,038 82,119 47,231 30,685	194,227 133,687 314,579 248,669 127,773	1,153,864 402,862 314,486 (208,215) 287,766	26,944 53,130 55,794 29,451 45,180	53,660 62,019 79,319 363,180 51,980	21,972 52,544 39,493 36,676 22,936	
1996 1997 1998 1999 2000	(1) 0 0 0 0	22,152 72,000 374,000 1,100,071 83	5,045 5,000 5,000 0	42,762 0 0 0 0	21,014 51,000 182,000 0 0	90,973 128,000 561,000 1,100,071 83	156,043 25,000 18,000 1,693 1,968	15,873 7,000 6,000 0	28,504 9,000 9,000 0 0	11,789 5,292 4,536 0	
2001 2002 2003 2004 2005	0 0 0 0	83 83 0 0	0 0 0 0	0 0 0 0	0 0 0 0	83 83 0 0	1,968 1,968 0 0	0 0 0 0	0 0 0 0	0 0 0 0	
2006 2007 2008 2009 2010	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	
Total	341,055	43,192,937	32,946,740	4,865,296	13,923,853	94,928,826	18,575,369	1,721,644	5,220,219	11,159,957	

# TABLE B-10 Capital Costs of Each Aqueduct Reach to Be Reimbursed through Capital Cost Component of Transportation Charge (Dollars)

Sheet 2 of 8

				(D)	oliars)				Sheet 2 of 8
		South E	Bay Aqueduct (co	ontinued)			California	Aqueduct	
							North San Joa	aquin Division	
Calendar	Reach 6	Reach 7	Reach 8	Reach 9	Total	Reach 1	Reach 2A	Reach 2B	Subtotal
Year	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1952	8	66	72	132	496	4,012	3,279	1,499	8,790
1953	38	327	336	640	2,425	10,559	8,589	3,964	23,112
1954	123	1,005	1,003	1,954	7,455	13,796	11,163	5,179	30,138
1955	160	1,293	1,149	2,454	9,500	7,370	5,952	2,760	16,082
1956	1,559	11,959	11,043	28,372	95,872	9,880	5,020	2,398	17,298
1957	3,659	28,675	27,385	563,114	729,065	11,953	5,456	2,612	20,021
1958	2,243	17,872	17,385	560,904	904,994	18,585	17,191	7,994	43,770
1959	357	3,200	3,568	149,874	843,718	123,170	100,306	45,510	268,986
1960	1,102	2,944	4,498	359,749	1,705,829	191,408	102,136	48,968	342,512
1961	4,726	18,325	22,765	(1,367)	3,880,575	153,765	195,947	42,843	392,555
1962	17,295	160,939	178,242	209,042	3,048,485	612,258	491,225	168,218	1,271,701
1963	265,414	1,250,386	939,832	129,902	5,626,310	1,993,284	1,525,734	684,095	4,203,113
1964	100,603	1,716,371	2,327,770	2,947,522	10,103,597	4,674,280	2,369,858	700,074	7,744,212
1965	42,345	368,476	637,266	1,921,844	4,464,145	5,877,189	6,873,699	2,975,719	15,726,607
1966	17,663	34,915	140,350	777,887	3,850,714	8,553,362	14,112,820	5,677,099	28,343,281
1967	(41,567)	137,856	147,183	379,764	5,070,861	9,678,607	10,672,113	6,646,739	26,997,459
1968	84,553	2,130	68,057	253,152	4,412,955	6,392,664	891,681	1,303,186	8,587,531
1969	4,279	11,572	162,300	32,000	1,575,529	3,542,767	792,259	443,924	4,778,950
1970	2,487	6,820	20,086	(15,718)	234,411	2,236,607	149,692	115,578	2,501,877
1971	4,350	6,923	17,750	39,084	122,687	98,138	215,512	69,410	383,060
1972	1,084	203	4,800	32,199	95,064	159,608	43,721	7,744	211,073
1973	288	989	7,449	9,693	65,621	105,581	25,496	22,418	153,495
1974	527	6,020	30,628	11,433	134,260	177,700	16,627	45,707	240,034
1975	126	679	1,086	3,464	71,991	239,144	14,680	169,676	423,500
1976	701	3,529	8,362	26,186	167,482	641,860	45,533	65,943	753,336
1977	270	1,310	8,651	24,938	234,239	274,381	20,283	22,568	317,232
1978	231	1,204	1,631	17,123	306,960	801,265	36,221	9,714	847,200
1979	1,367	1,721	2,134	7,322	181,041	1,051,792	59,695	26,106	1,137,593
1980	1,321	1,718	2,182	7,102	445,267	4,173,603	96,760	38,789	4,309,152
1981	308	1,462	1,398	5,077	(114,602)	(502,921)	1,487,516	38,451	1,023,046
1982	716	1,561	1,746	6,074	29,565	700,738	46,501	22,308	769,547
1983	407	5,721	8,143	23,367	651,388	706,104	84,435	211,619	1,002,158
1984	269	1,853	1,667	13,301	662,851	1,559,539	41,352	48,478	1,649,369
1985	402	1,657	2,129	6,750	80,035	677,955	24,812	19,404	722,171
1986	1,119	2,744	3,313	12,234	150,983	398,788	63,830	35,420	498,038
1987	1,496	3,081	3,560	21,842	232,861	799,672	88,945	41,659	930,276
1988	5,707	6,690	7,605	33,731	498,128	3,369,428	(128,038)	(56,443)	3,184,947
1989	2,652	3,890	4,770	14,582	231,264	7,005,955	346,907	174,135	7,526,997
1990	5,078	19,819	36,521	86,450	566,852	13,465,221	111,264	2,410,190	15,986,675
1991	1,947	5,064	7,364	31,732	1,302,547	13,920,879	133,269	115,084	14,169,232
1992	1,211	2,187	2,427	35,885	612,265	6,264,684	243,149	240,250	6,748,083
1993	3,637	6,052	8,901	42,370	550,052	2,545,896	257,923	200,335	3,004,154
1994	2,968	4,866	5,440	90,374	324,740	1,155,193	151,917	89,942	1,397,052
1995	11,951	4,154	15,259	26,806	466,032	1,519,978	242,735	143,080	1,905,793
1996 1997 1998 1999 2000	3,599 1,000 1,000 0	3,338 3,000 3,000 0	3,506 6,000 6,000 0	14,560 11,000 11,000 0	237,212 67,292 58,536 1,693 1,968	916,745 1,688,346 3,929,920 2,949,589 15,076	92,374 37,993 33,994 0	50,805 13,997 11,998 0 0	1,059,924 1,740,336 3,975,912 2,949,589 15,076
2001 2002 2003 2004 2005	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	1,968 1,968 0 0	15,076 15,076 0 0	0 0 0 0 0	0 0 0 0	15,076 15,076 0 0
2006 2007 2008 2009 2010	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0 0	0 0 0 0	0 0 0 0
Total	562,779	3,879,566	4,920,712	8,966,900	55,007,146	114,945,525	42,269,526	23,167,146	180,382,197

TABLE B-10

# Capital Costs of Each Aqueduct Reach to Be Reimbursed through Capital Cost Component of Transportation Charge (Dollars)

Sheet 3 of 8

				(D0	llars)				Sheet 3 of 8
				Californ	ia Aqueduct (co	ontinued)			
			San Luis	Division			South	San Joaquin D	ivision
Calendar	Reach 3	Reach 4	Reach 5	Reach 6	Reach 7	Subtotal	Reach 8C	Reach 8D	Reach 9
Year	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)
1952	2,492	3,549	3,987	1,010	1,390	12,428	13	727	1,109
1953	6,999	10,144	10,986	2,834	3,869	34,832	45	2,671	4,185
1954	8,704	12,545	13,693	3,520	4,766	43,228	50	2,719	4,026
1955	4,273	6,055	6,813	1,728	2,325	21,194	19	888	1,100
1956	3,295	5,600	5,857	1,445	3,556	19,753	98	3,850	4,376
1957	3,543	6,115	6,357	1,565	3,998	21,578	234	10,604	13,209
1958	11,927	19,393	22,037	5,509	7,512	66,378	375	19,033	25,073
1959	21,979	37,358	39,689	9,813	19,679	128,518	436	20,578	25,697
1960	207,025	45,419	41,044	12,074	37,633	343,195	1,673	44,565	25,290
1961	184,443	292,639	170,559	38,338	70,068	756,047	3,949	75,726	30,852
1962	495,836	549,984	252,698	22,397	26,967	1,347,882	6,131	159,481	62,375
1963	2,772,189	2,034,351	2,498,712	66,353	30,647	7,402,252	5,861	161,252	81,343
1964	4,348,311	4,932,301	1,053,227	161,422	251,461	10,746,722	4,014	90,622	117,907
1965	3,860,997	5,688,252	2,869,931	1,072,111	667,768	14,159,059	15,049	491,042	564,036
1966	2,312,372	8,527,843	5,765,798	4,230,221	7,708,334	28,544,568	201,274	5,197,322	2,539,278
1967	(44,527)	2,062,305	6,942,522	222,885	6,675,398	15,858,583	212,285	4,982,844	3,363,650
1968	119,884	395,689	973,956	179,917	461,031	2,130,477	64,234	611,192	940,074
1969	(6,065)	126,946	98,492	107,486	160,668	487,527	58,960	116,146	85,130
1970	32,387	(20,243)	105,385	(827,457)	1,215,966	506,038	23,011	106,810	84,116
1971	99,945	230,624	305,227	26,995	341,010	1,003,801	8,813	33,099	23,088
1972	15,990	90,852	17,053	14,621	281,343	419,859	10,818	13,349	16,603
1973	6,753	103,707	41,549	13,810	41,427	207,246	5,145	11,089	13,249
1974	6,618	117,165	55,978	16,199	71,796	267,756	5,434	24,433	16,567
1975	18,921	107,275	23,671	8,797	152,574	311,238	5,424	15,960	12,966
1976	17,485	79,554	13,041	5,138	41,687	156,905	19,931	76,280	62,164
1977	35,707	84,669	9,412	4,028	9,655	143,471	21,096	70,005	97,952
1978	8,539	428,395	7,006	3,536	6,994	454,470	7,584	40,453	17,395
1979	(35,394)	543,225	19,463	9,485	(242,253)	294,526	10,474	6,181	6,227
1980	66,622	3,450,695	191,307	75,209	185,384	3,969,217	2,158	17,492	17,706
1981	28,491	(2,244,127)	(44,017)	(15,456)	918,984	(1,356,125)	1,151	9,687	9,541
1982	100,629	(1,616,569)	20,184	10,359	3,525,738	2,040,341	2,469	8,283	6,956
1983	75,639	33,881	11,785	6,638	1,811,638	1,939,581	7,955	13,785	11,090
1984	31,748	87,083	26,712	12,754	3,053,662	3,211,959	26,489	10,112	6,268
1985	53,243	56,733	13,685	6,934	582,927	713,522	7,220	9,762	7,688
1986	73,979	201,509	50,668	19,223	1,282,469	1,627,848	8,902	25,024	20,503
1987	(7,829)	116,268	40,009	15,946	518,349	682,743	12,744	18,927	56,042
1988	(149,379)	631,854	(406,387)	(137,348)	923,644	862,384	9,834	(119,733)	(60,632)
1989	39,808	687,128	233,086	80,208	576,658	1,616,888	5,309	91,628	278,188
1990	23,749	247,531	75,897	28,020	447,606	822,803	5,772	40,908	2,012,206
1991	4,916,234	403,182	98,988	35,929	511,975	5,966,308	4,601	43,195	41,415
1992	(756,157)	551,107	213,203	74,940	399,212	482,305	3,591	104,287	109,648
1993	110,611	728,307	186,772	71,065	722,544	1,819,299	15,074	101,873	91,167
1994	1,375,969	791,483	111,196	43,045	1,048,075	3,369,768	6,928	43,581	41,584
1995	295,656	638,347	149,323	65,626	2,008,071	3,157,023	13,469	57,529	48,982
1996 1997 1998 1999 2000	83,659 19,745 16,924 0	322,833 67,896 49,979 0	70,820 33,948 32,062 0	26,989 12,259 11,316 0	1,914,847 17,917 16,974 0	2,419,148 151,765 127,255 0	21,003 2,829 1,886 0	79,648 16,031 14,145 0	52,325 13,202 12,259 0
2001 2002 2003 2004 2005	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
2006 2007 2008 2009 2010	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0 0	0 0 0 0	0 0 0 0
Total	20,919,969	31,726,831	22,483,384	5,859,436	38,523,943	119,513,563	851,814	12,975,085	11,015,175

Table B-10

# Capital Costs of Each Aqueduct Reach to Be Reimbursed through Capital Cost Component of Transportation Charge (Dollars)

Sheet 4 of 8

				`	oliars)				Sheet 4 of 8
					ia Aqueduct (co	· · · · · · · · · · · · · · · · · · ·			
				South San	Joaquin Divisior	(continued)			
Calendar	Reach 10A	Reach 11B	Reach 12D	Reach 12E	Reach 13B	Reach 14A	Reach 14B	Reach 14C	Reach 15A
Year	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)
1952	695	1,279	1,980	995	1,663	794	212	212	1,911
1953	2,569	4,790	7,480	3,745	6,236	2,599	733	741	7,016
1954	2,821	4,855	7,565	3,792	6,319	2,880	810	817	7,073
1955	1,097	1,557	2,404	1,211	2,025	1,183	325	327	2,253
1956	4,428	6,223	9,233	4,737	8,054	7,026	1,638	1,584	9,939
1957	13,269	18,772	29,082	14,615	24,411	15,651	3,834	3,864	26,871
1958	25,086	48,191	78,564	39,087	61,715	33,726	12,330	11,813	49,499
1959	25,787	67,246	107,781	53,836	86,478	64,824	22,102	21,828	70,838
1960	47,492	66,317	77,936	39,867	63,517	84,363	23,260	22,305	73,305
1961	68,505	46,073	88,274	51,457	28,015	242,753	91,290	65,565	150,205
1962	57,705	56,056	69,189	44,851	49,179	208,180	61,489	47,608	133,653
1963	52,585	91,914	173,985	86,405	67,733	425,626	104,436	77,970	102,072
1964	124,014	333,621	291,013	174,469	86,271	1,093,795	684,005	485,033	571,173
1965	622,257	1,053,029	1,524,848	1,044,851	196,487	3,385,205	1,655,024	1,436,258	476,830
1966	2,800,056	3,709,779	673,429	466,228	418,141	4,916,319	974,862	724,354	1,829,852
1967	3,652,342	4,636,627	1,881,333	1,244,265	1,238,428	2,788,299	525,653	400,183	1,721,304
1968	1,025,969	1,323,302	4,726,074	3,145,775	8,343,706	10,210,266	1,330,361	1,405,117	7,522,015
1969	145,111	229,185	706,272	529,080	3,704,065	15,112,041	1,223,457	1,134,395	9,523,012
1970	74,366	85,151	70,725	72,798	320,797	11,031,255	987,213	738,955	8,836,897
1971	15,595	45,006	43,988	42,624	339,078	2,925,191	193,255	36,514	3,275,227
1972	19,736	32,657	43,939	24,748	81,937	1,388,348	101,784	20,165	1,003,380
1973	14,283	16,448	9,980	16,320	25,090	680,834	19,584	13,469	798,805
1974	22,111	14,951	19,555	32,240	29,582	524,504	30,735	16,333	778,696
1975	15,865	13,479	10,793	13,678	25,827	269,197	25,164	21,048	370,265
1976	76,202	54,217	37,464	59,842	105,332	507,519	59,753	42,776	434,574
1977	75,628	52,919	22,826	54,444	81,293	301,515	49,972	30,152	235,514
1978	48,754	16,469	(2,816)	27,331	43,126	348,674	(653)	1,500	297,817
1979	241	6,906	13,401	14,229	25,411	293,786	9,846	7,856	245,590
1980	18,165	18,813	15,608	27,498	34,190	1,676,267	29,169	23,023	1,719,775
1981	10,309	15,334	28,253	21,885	25,515	(1,074,560)	28,987	34,617	(1,142,332)
1982	8,237	6,608	7,680	8,346	16,339	(745,914)	9,886	29,393	(804,147)
1983	14,488	9,820	14,285	13,107	35,872	419,753	17,478	24,992	116,008
1984	7,533	29,139	93,958	52,373	22,732	60,234	80,335	66,264	64,859
1985	9,215	6,949	5,263	8,013	8,875	(49,408)	9,523	5,867	54,782
1986	22,335	16,796	16,540	25,300	20,483	141,132	26,384	14,191	154,203
1987	16,704	13,512	12,369	20,023	15,435	101,453	20,411	8,581	227,047
1988	(159,351)	(73,645)	(151,036)	(51,396)	(120,096)	365,494	(75,271)	(75,303)	356,403
1989	70,313	65,313	63,456	121,044	73,130	2,825,444	119,696	36,765	3,000,325
1990	32,597	27,059	25,129	44,847	33,825	626,372	41,977	14,416	481,425
1991	36,969	32,244	30,183	55,182	34,182	426,096	50,412	12,163	450,703
1992	103,802	100,300	98,655	192,833	98,270	994,581	185,778	9,603	453,981
1993	90,592	70,310	63,381	118,663	80,705	688,990	110,043	39,155	998,037
1994	66,650	29,935	27,646	51,429	36,047	405,371	45,659	17,843	686,985
1995	440,439	37,176	29,985	58,131	47,947	554,401	56,831	31,457	564,209
1996	299,948	46,777	29,037	76,169	24,828	363,933	28,906	15,678	255,580
1997	16,031	9,430	10,373	10,373	11,316	45,264	11,316	8,487	33,948
1998	14,145	7,544	10,373	8,487	10,373	31,119	9,430	7,544	21,689
1999	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0
2001 2002	0	0	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0
2006 2007	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0
Total	10,153,690	12,506,433	11,157,435	8,169,827	15,979,884	64,722,375	8,999,424	7,093,478	46,249,066

## TABLE B-10 Capital Costs of Each Aqueduct Reach to Be Reimbursed through Capital Cost Component of Transportation Charge (Dollars)

Sheet 5 of 8

	i				niars)				Sheet 5 of 8
					nia Aqueduct (co	ntinued)			
	South San Jo	paquin (cont.)	Т	ehachapi Divisi	on		Mojave	Division	
Calendar	Reach 16A	Subtotal	Reach 17E	Reach 17F	Subtotal	Reach 18A	Reach 19	Reach 19C	Reach 20A
Year	(38)	(39)	(40)	(41)	(42)	(43)	(44)	(45)	(46)
1952	4,440	16,030	9,703	4,072	13,775	4,090	1,520	0	2,561
1953	16,513	59,323	31,337	13,284	44,621	12,610	4,685	0	7,246
1954	16,601	60,328	46,243	20,010	66,253	16,642	6,184	0	9,506
1955	5,223	19,612	25,880	11,362	37,242	5,612	2,086	0	2,529
1956	21,754	82,940	47,487	17,609	65,096	6,038	2,244	0	2,440
1957	62,657	237,073	119,673	49,130	168,803	22,348	8,304	0	9,035
1958	133,083	537,575	164,056	72,091	236,147	37,917	14,166	123	15,391
1959	205,748	773,179	151,389	57,883	209,272	38,620	23,450	1,102	23,605
1960	204,788	774,678	203,222	45,323	248,545	21,356	26,093	5,318	40,523
1961	206,305	1,148,969	387,819	85,558	473,377	35,664	32,281	2,262	34,918
1962	171,396	1,127,293	353,119	82,610	435,729	68,508	266,284	1,841	10,323
1963	481,941	1,913,123	1,191,633	124,757	1,316,390	37,379	435,881	4,137	39,706
1964	1,778,952	5,834,889	1,866,000	775,005	2,641,005	95,693	706,369	8,564	43,342
1965	1,268,176	13,733,092	2,574,824	2,284,869	4,859,693	121,060	716,092	9,156	108,519
1966	2,896,274	27,347,168	5,537,412	9,323,517	14,860,929	366,116	1,644,699	13,373	159,282
1967	3,442,021	30,089,234	26,239,390	12,398,708	38,638,098	1,312,022	903,880	24,103	645,078
1968	7,578,498	48,226,583	33,363,479	7,416,464	40,779,943	136,804	7,109,653	71,388	1,889,601
1969	13,136,056	45,702,910	40,368,425	6,883,206	47,251,631	213,805	2,465,641	7,423	5,939,151
1970	13,890,751	36,322,845	35,446,706	6,786,231	42,232,937	2,211,077	1,210,665	6,217	3,652,478
1971	7,903,937	14,885,415	20,141,395	6,835,303	26,976,698	1,496,843	284,738	6,994	1,074,759
1972	3,025,555	5,783,019	10,002,935	34,791	10,037,726	129,417	409,903	3,620	471,963
1973	1,472,313	3,096,609	3,090,140	36,207	3,126,347	23,931	75,638	2,539	88,416
1974	1,031,843	2,546,984	4,798,348	152,494	4,950,842	28,399	205,581	2,703	138,673
1975	489,545	1,289,211	2,144,178	411,404	2,555,582	44,774	70,652	5,066	68,157
1976	618,049	2,154,103	1,124,357	174,629	1,298,986	121,043	84,593	6,786	59,967
1977	580,209	1,673,525	655,047	31,512	686,559	261,400	133,767	7,521	117,878
1978	582,775	1,428,409	1,900,843	27,956	1,928,799	553,014	57,150	5,872	51,615
1979	542,554	1,182,702	2,099,385	61,381	2,160,766	633,284	339,536	10,831	37,085
1980	3,772,498	7,372,362	17,433,610	6,046	17,439,656	1,141,829	1,073,430	3,604	308,188
1981	(2,526,104)	(4,557,717)	(3,848,206)	6,908	(3,841,298)	1,226,519	845,702	4,498	48,625
1982	(1,850,736)	(3,296,600)	11,370,111	6,054	11,376,165	7,054,354	746,900	3,920	33,869
1983	166,301	864,934	8,862,914	8,269	8,871,183	11,038,206	64,660	2,596	40,793
1984	123,150	643,446	3,227,937	31,701	3,259,638	8,382,266	309,491	3,124	17,505
1985	82,117	165,866	1,926,289	10,460	1,936,749	5,269,457	252,781	3,885	72,697
1986	186,674	678,467	1,381,955	33,788	1,415,743	2,093,799	2,324,852	4,261	2,510,915
1987	194,936	718,184	671,183	13,807	684,990	1,348,349	54,431	4,684	623,872
1988	727,675	572,943	3,053,431	(49,733)	3,003,698	848,019	(84,477)	13,409	(64,069)
1989	6,060,503	12,811,114	875,038	64,706	939,744	377,336	232,440	50,953	150,430
1990	557,370	3,943,903	800,801	25,095	825,896	199,936	(378,237)	35,291	(585,973)
1991	685,891	1,903,236	711,666	33,429	745,095	273,261	61,392	81,604	(165,105)
1992	671,307	3,126,636	754,565	26,425	780,990	621,845	419,536	86,644	228,454
1993	804,647	3,272,637	1,227,602	35,457	1,263,059	1,131,832	268,667	72,746	112,125
1994	501,796	1,961,454	816,958	17,147	834,105	999,927	166,710	60,147	53,087
1995	580,055	2,520,611	1,600,647	22,674	1,623,321	400,936	171,765	45,856	103,642
1996 1997 1998 1999 2000	286,630 55,637 38,663 0	1,580,462 244,237 187,657 0 0	2,461,350 74,497 47,150 14,704 17,098	13,200 4,715 4,715 0 0	2,474,550 79,212 51,865 14,704 17,098	100,361 2,829 2,829 0	78,736 16,031 15,088 0 0	21,772 0 0 0 0	44,386 13,202 12,259 0
2001 2002 2003 2004 2005	0 0 0 0	0 0 0 0	17,098 17,098 0 0	0 0 0 0	17,098 17,098 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
2006 2007 2008 2009 2010	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
Total	72,886,967	282,760,653	247,599,921	54,532,229	302,132,150	50,569,356	23,881,633	705,933	18,302,649

TABLE B-10

# Capital Costs of Each Aqueduct Reach to Be Reimbursed through Capital Cost Component of Transportation Charge (Dollars)

				,	ollars)	intin a al\			Sheet 6 of 8
-			Mojav	e Division (con	ia Aqueduct (co	ntinuea)		Santa Ar	na Division
	Reach 20B	Reach 21	Reach 22A	Reach 22B	Reach 23	Reach 24	Subtotal	Reach 25	Reach 26A
Calendar Year	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)
1952	892	5,788	35	2,013	2,074	2,413	21,386	3,334	5,599
1953	3,402	17,846	71	5,752	6,886	7,438	65,936	10,275	17,264
1954	4,548	23,558	369	8,560	7,849	9,820	87,036	13,566	22,790
1955	2,213	7,947	178	2,754	2,725	3,313	29,357	4,575	7,687
1956	2,655	8,542	216	2,905	2,961	3,561	31,562	4,917	8,264
1957	9,826	31,616	800	10,757	10,962	13,177	116,825	18,205	30,586
1958	16,752	53,569	1,397	18,717	18,578	22,627	199,237	31,001	52,019
1959	18,604	56,724	1,844	25,421	20,372	45,646	255,388	39,325	58,137
1960	37,179	43,893	11,029	136,751	17,152	109,816	449,110	65,655	93,700
1961	37,102	21,532	14,517	215,859	9,546	373,473	777,154	26,979	56,734
1962	10,730	8,197	4,186	164,168	4,336	279,421	817,994	9,964	36,235
1963	40,865	26,670	17,081	237,695	7,228	358,503	1,205,145	31,013	112,271
1964	71,116	33,912	22,793	262,996	6,863	244,003	1,495,651	69,669	202,642
1965	343,506	91,095	65,689	827,655	11,836	621,566	2,916,174	279,237	206,356
1966	1,311,628	160,388	178,538	1,746,245	31,078	1,018,628	6,629,975	415,066	364,004
1967	1,718,942	498,257	367,961	3,146,128	62,135	2,331,106	11,009,612	3,184,296	638,539
1968	2,291,691	1,141,929	1,145,768	4,588,850	102,207	2,600,293	21,078,184	8,264,126	1,268,194
1969	5,626,284	2,358,737	1,515,147	7,750,478	260,659	11,131,406	37,268,731	6,807,783	1,768,456
1970	5,304,372	3,232,911	2,081,810	23,451,612	1,240,798	16,885,193	59,277,133	2,169,051	7,229,429
1971	1,091,123	825,070	432,464	16,772,680	1,922,115	5,385,721	29,292,507	1,135,248	9,811,736
1972	635,507	484,772	324,865	3,788,894	48,049	788,479	7,085,469	1,095,740	5,528,987
1973	83,840	63,774	36,179	1,623,274	24,333	4,225,877	6,247,801	136,994	1,810,729
1974	118,639	103,545	54,198	5,699,605	130,567	766,562	7,248,472	68,180	1,922,999
1975	169,294	167,240	19,453	4,793,580	19,467	373,783	5,731,466	166,653	3,787,797
1976	102,909	44,896	24,732	3,103,916	84,188	204,705	3,837,735	475,176	1,494,750
1977	120,160	71,389	49,445	1,654,122	60,112	232,230	2,708,024	76,255	776,085
1978	68,838	32,855	18,183	677,448	36,484	210,198	1,711,657	57,463	131,076
1979	36,225	18,948	10,675	560,506	10,634	103,615	1,761,339	29,960	80,482
1980	284,545	133,526	121,171	2,239,224	64,447	559,963	5,929,927	31,462	181,638
1981	32,214	13,223	6,466	(774,614)	160,862	203,941	1,767,436	5,864	69,031
1982	77,988	13,158	14,459	432,274	437,307	79,819	8,894,048	9,224	159,280
1983	58,714	25,900	10,363	451,428	2,198,410	58,989	13,950,059	4,304	528,764
1984	35,378	845,423	6,052	(38,439)	1,369,400	34,764	10,964,964	3,850	270,455
1985	(201,541)	(432,054)	1,985,548	663,873	974,482	51,634	8,640,762	5,555	97,740
1986	(1,918,884)	(1,245,542)	3,328,851	1,200,178	257,448	51,994	8,607,872	9,927	233,121
1987	(306,867)	78,262	66,943	4,567,279	327,301	91,223	6,855,477	4,908	262,960
1988	(48,671)	44,811	353,772	1,471,879	1,194,551	197,774	3,926,998	7,359	357,771
1989	184,718	173,398	538,186	4,839,057	2,639,896	433,434	9,619,848	8,102	(8,702,418)
1990	(394,435)	(585,296)	(86,876)	9,913,279	3,511,027	343,722	11,972,438	176,846	(282,322)
1991	334	(123,267)	(11,910)	9,167,944	8,674,108	139,276	18,097,637	202,292	224,756
1992	341,118	(261,440)	76,236	5,401,064	20,496,621	129,943	27,540,021	335,006	93,733
1993	181,946	134,832	49,582	3,190,636	32,813,768	159,889	38,116,023	1,506,806	4,258,808
1994	115,971	67,295	27,317	987,387	15,344,894	83,430	17,906,165	2,104,631	2,717,637
1995	132,457	79,710	35,208	198,753	11,349,343	132,538	12,650,208	3,428,787	752,682
1996 1997 1998 1999 2000	57,397 11,316 10,373 0 0	52,632 8,487 7,544 0 0	20,760 5,658 4,715 0	2,118,829 82,041 62,238 0 0	3,877,400 2,163,242 814,752 0	103,249 16,031 10,373 0 0	6,475,522 2,318,837 940,171 0	18,983,857 7,888,195 139,564 174,455 0	845,031 28,290 17,917 0 0
2001 2002 2003 2004 2005	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
2006 2007 2008 2009 2010	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
Total	17,932,913	8,666,202	12,952,124	127,453,651	112,831,453	51,234,559	424,530,473	59,720,700	39,638,421

TABLE B-10

Capital Costs of Each Aqueduct Reach to Be Reimbursed through
Capital Costs Component of Transportation Charge

(Dollars) Sheet 7 of 8

					ia Aqueduct (co	ontinued)			Sheet 7 of 8
		Santa Ana Divis	sion (continued		I	,,,,,,,,,,	West Branch		
		Santa Ana Divis	•		D	D		D	D
Calendar	Reach 28G (a	Reach 28H	Reach 28J	Subtotal	Reach 29A	Reach 29F	Reach 29G	Reach 29H	Reach 29J
Year	(56)	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)
1952 1953	4,785	4,055	3,020	20,793	2,924 9,093	136	175	459 1,754	553
1953 1954	15,580 18,015	11,511 18,100	9,476 12,160	64,106 84,631	9,093 7,389	344 1,201	237 2,229	1,754 2,350	1,683 4,162
1955	6,052	6,081	4,151	28,546	1,019	585	1,086	1,147	2,029
1956	6,496	6,525	4,480	30,682	490	698	1,297	1,366	2,420
1957	24.044	24,156	16,585	113,576	1,809 3,256	2,583	4,792	5,057	8,952 15,847
1958 1959	40,844 45,746	41,033 45,946	28,470 44,331	193,367 233,485	3,256 7,953	4,516 9,150	8,714 19,414	8,878 18,243	15,84 <i>7</i> 35,583
1960	59,102	58,548	118,969	395,974	21,753	14,990	34,447	29,764	69,752
1961	32,226	34,382	674,787	825,108	22,442	12,775	21,559	20,086	39,761
1962	21,383	20,530	47,484 1.506,440	135,596	40,237	28,729	86,938	58,215	108,962 211,592
1963 1964	43,884 89,710	41,698 45,762	98,569	1,735,306 506,352	91,959 150,670	69,162 66,420	163,347 207,977	110,015 143,340	291,404
1965	96,956	76,899	146,095	805,543	361,811	77,914	403,115	127,430	589,638
1966	170,878	308,756	589,107	1,847,811	489,512	203,497	1,233,640	348,918	3,231,797
1967	233,968	283,126	987,832	5,327,761	1,589,715	882,096	1,117,243	891,607	31,088,491
1968 1969	871,337 1,117,873	266,295 1,444,654	780,587 756,442	11,450,539 11,895,208	3,899,363 6,592,580	300,921 336,480	396,190 693,348	1,104,832 1,184,454	36,157,768 9,655,871
1970	1,843,621	1,013,468	2,829,523	15,085,092	7,986,733	6,089,401	2,624,747	3,002,968	8,463,475
1971	16,095,702	6,401,303	12,111,623	45,555,612	4,247,037	3,768,699	1,120,231	8,244,651	5,844,024
1972 1973	1,537,880 209,664	11,960,791 247,769	21,542,747 3,673,344	41,666,145 6,078,500	1,871,831 775,824	426,932 168,064	985,512 399,856	18,787,722 9,408,706	(23,015,734) 1,821,206
1973	162,178	101,638	1,980,991	4,235,986	560,657	168,878	169,717	3,901,261	(3,454,239)
1975	157,365	124,399	1,626,274	5,862,488	353,670	421,176	925,693	664,113	609,891
1976	178,287	118,748	1,497,465	3,764,426	396,809	650,417	1,274,484	706,244	650,209
1977 1978	127,106 147,112	89,036 153,867	323,091 347,482	1,391,573 837,000	390,637 1,427,190	3,018,637 2,219,135	2,152,961 6,694,615	196,012 57,817	1,135,148 149,932
1979	29,723	19,225	225,947	385,337	940,013	2,168,382	19,813,742	597,858	331,313
1980	137,833	154,821	1,077,900	1,583,654	1,276,793	4,108,143	24,537,814	550,337	204,751
1981	28,815	22,654	61,349	187,713	(711,751)	2,699,873	19,806,531	94,944	28,852
1982 1983	16,069 18,213	58,900 89,581	55,841 (264,804)	299,314 376,058	(465,217) 100,394	351,251 180,971	17,964,617 6,751,649	215,678 220,029	42,587 24,295
1984	14,462	12,259	49,547	350,573	71,759	68,930	2,870,259	335,942	17,285
1985	17,816	11,481	54,070	186,662	142,244	25,386	2,126,670	102,366	21,971
1986	31,564	25,037 8,005	86,794	386,443 338,542	133,914	62,294 453,949	274,660	141,894	36,149
1987 1988	17,141 41,896	8,005 21,116	45,528 90,798	338,542 518,940	13,936 559,740	453,949 118,014	711,773 1,660,980	192,511 203,154	27,931 95,941
1989	28,791	12,678	51,892	(8,600,955)	237,449	430,765	584,992	242,092	97,542
1990	27,102	12,670	54,830	(10,874)	199,216	311,964	363,268	812,680	54,065
1991	142,174	15,549	62,950	647,721	221,197	344,568	453,816	1,132,639	55,205
1992 1993	35,099 44,453	14,311 27,158	71,989 163,478	550,138 6,000,703	542,965 466,482	296,210 320,375	468,445 644,694	4,404,498 3,361,980	51,039 74,328
1994	16,746	11,942	55,750	4,906,706	207,709	232,867	365,578	307,862	34,694
1995	37,582	29,653	170,238	4,418,942	368,630	401,082	546,455	479,175	40,759
1996	79,263	75,801	340,423	20,324,375	170,234	168,146	249,118	207,010	20,944
1997 1998	12,259 11,316	11,316 11,316	27,347 16,974	7,967,407 197,087	34,891 21,689	9,430 7,544	58,466 8,141,862	24,518 15,088	9,430 7,544
1999	0	0	0	174,455	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0
2002 2003	0	0 0	0 0	0	0	0	0	0 0	0
2004	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0
2006 2007	0	0	0	0 0	0	0	0	0	0
2008	0	0	0	Ō	Ō	0	0	0	0
2009	0	0	0	0 0	0	0	0	0	0
2010	-								
Total	24,146,111	23,594,549	54,260,366	201,360,147	35,836,650	31,703,680	129,138,953	62,669,664	74,996,802

a) Includes excess capacity costs (not shown in Table B-9) allocated to MWDSC in the following years and repaid under Article 24(c) of its contract: 1970 - \$362,000; 1971 - \$6,198,000; 1972 - \$139,000.

# Capital Costs of Each Aqueduct Reach to Be Reimbursed through Capital Cost Component of Transportation Charge (Dollars)

Sheet 8 of 8

<del></del>				Calif	nia Amuadu-17	antinual)			Sheet 8 of 8
	Most Pro	h (continued)			nia Aqueduct (d				I
		h (continued)	Reach 31A		Coastal Branch		Subtotal		
Calendar	Reach 30	Subtotal	(67)	Reach 33A	Reach 34	Reach 35	Subtotai	Total	Grand Total
Year	(65)	(66)		(68)	(69)	(70)	(71)	(72)	(73)
1952	1,408	5,655	0	0	0	0	0	98,857	99,353
1953	4,346	17,457	0	0	0	0	0	309,387	311,812
1954	5,743	23,074	0	0	0	0	0	394,688	402,143
1955	1,943	7,809	0	0	0	0	0	159,842	169,342
1956	2,077	8,348	0	0	0	0	0	255,679	351,551
1957	7,684	30,877	0	0	0	0	0	708,753	1,464,452
1958	13,931	55,142	0	0	0	0	0	1,331,616	2,286,623
1959	44,384	134,727	28,046	49,114	7,441	8,236	92,837	2,096,392	2,967,412
1960	84,703	255,409	34,404	70,450	8,507	14,265	127,626	2,937,049	4,660,833
1961	123,330	239,953	13,801	17,868	1,501	3,931	37,101	4,650,264	8,545,244
1962	348,366	671,447	10,121	7,798	524	1,689	20,132	5,827,774	8,875,171
1963	521,491	1,167,566	20,470	14,299	880	2,943	38,592	18,981,487	24,610,278
1964	1,372,464	2,232,275	315,418	26,963	1,687	5,639	349,707	31,550,813	41,736,060
1965	3,383,950	4,943,858	747,023	36,178	2,118	7,060	792,379	57,936,405	62,664,743
1966	9,364,753	14,872,117	2,258,915	35,864	1,736	5,764	2,302,279	124,748,128	129,110,330
1967	17,618,827	53,187,979	6,310,419	38,331	1,891	6,213	6,356,854	187,465,580	194,146,365
1968	15,736,691	57,595,765	2,707,580	30,784	1,324	4,369	2,744,057	192,593,079	197,978,911
1969	16,228,175	34,690,908	423,797	26,549	907	2,905	454,158	182,530,023	184,473,490
1970	22,330,328	50,497,652	269,194	24,368	851	2,787	297,200	206,720,774	207,082,650
1971	16,890,503	40,115,145	164,446	32,230	1,315	3,804	201,795	158,414,033	158,624,739
1972	3,818,001	2,874,264	131,332	17,601	522	1,660	151,115	68,228,670	68,362,291
1973	13,426,222	25,999,878	182,493	16,154	542	1,758	200,947	45,110,823	45,263,853
1974	2,988,318	4,334,592	190,866	18,799	463	1,405	211,533	24,036,199	24,402,166
1975	1,808,235	4,782,778	64,582	36,012	2,255	6,656	109,505	21,065,768	21,318,838
1976	1,253,067	4,931,230	198,266	68,898	5,088	14,988	287,240	17,183,961	17,492,910
1977	345,023	7,238,418	918,473	81,305	1,834	5,387	1,006,999	15,165,801	15,544,382
1978	763,445	11,312,134	52,994	83,300	1,302	3,852	141,448	18,661,117	19,119,151
1979	282,145	24,133,453	38,182	108,951	1,505	4,433	153,071	31,208,787	31,864,031
1980	2,055,206	32,733,044	189,070	376,035	1,153	3,448	569,706	73,906,718	75,002,450
1981	275,460	22,193,909	19,897	(157,537)	1,428	4,260	(131,952)	15,285,012	15,781,136
1982	351,376	18,460,292	(16,381)	(96,449)	589	1,787	(110,454)	38,432,653	39,882,004
1983	566,545	7,843,883	85,496	67,106	795	2,398	155,795	35,003,651	38,343,019
1984	1,118,954	4,483,129	28,568	54,074	988	2,959	86,589	24,649,667	30,577,826
1985	284,243	2,702,880	36,834	54,316	2,111	6,266	99,527	15,168,139	28,790,765
1986	213,353	862,264	82,358	223,133	17,458	51,280	374,229	14,450,904	44,171,381
1987	158,313	1,558,413	53,817	1,061,939	92,505	272,969	1,481,230	13,249,855	35,870,327
1988	222,086	2,859,915	205,911	1,182,010	99,440	293,559	1,780,920	16,710,745	23,858,580
1989	149,110	1,741,950	90,131	902,586	77,254	227,945	1,297,916	26,953,502	29,841,200
1990	118,387	1,859,580	127,567	1,092,238	103,747	277,755	1,601,307	37,001,728	38,887,895
1991	229,526	2,436,951	165,133	1,634,971	123,538	363,680	2,287,322	46,253,502	47,750,330
1992	211,941	5,975,098	184,260	3,075,951	176,653	478,091	3,914,955	49,118,226	49,864,220
1993	297,161	5,165,020	345,901	10,812,089	1,065,048	629,811	12,852,849	71,493,744	72,358,405
1994	170,302	1,319,012	174,861	44,387,474	4,508,833	2,367,908	51,439,076	83,133,338	83,706,761
1995	315,334	2,151,435	328,874	106,313,783	10,200,464	9,807,380	126,650,501	155,077,834	155,671,642
1996 1997 1998 1999 2000	108,424 39,606 29,233 0	923,876 176,341 8,222,960 0	617,638 162,000 177,000 125,000 150,000	60,894,943 18,561,000 144,000 0	29,523,400 12,278,051 210,000 49,000 0	12,233,668 1,117,708 126,000 22,000	103,269,649 32,118,759 657,000 196,000 150,000	138,527,506 44,796,894 14,359,907 3,334,748 182,174	138,855,690 44,992,186 14,979,443 4,436,512 184,225
2001 2002 2003 2004 2005	0 0 0 0	0 0 0 0	150,000 150,000 0 0	0 0 0 0	0 0 0 0	0 0 0 0	150,000 150,000 0 0	182,174 182,174 0 0	184,225 184,225 0 0
2006 2007 2008 2009 2010	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0 0	0 0 0 0	0 0 0 0
Total	135,684,113	470,029,862	18,714,757	251,425,478	58,576,648	28,400,616	357,117,499	2,337,826,544	2,488,103,571

TABLE B-11

### Minimum OMP&R Costs of Each Aqueduct Reach to Be Reimbursed through Minimum OMP&R Component of Transportation Charge (Dollars)

	Upper		Noi	rth Bay Aque	(Dollars)	)	1	South Ba	y Aqueduct	Sheet 1 of 8
Calendar	Feather River Division	Reach 1	Reach 2	Reach 3A	Reach 3B	Total	Reach 1	Reach 2	Reach 4	Reach 5
Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1961 1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 37,396 147,719 149,750 259,939	0 5,522 20,639 15,574 45,718	0 0 0 19,405 46,485	0 0 0 0
1966 1967 1968 1969 1970	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 130 80,875 94,872	0 0 130 80,875 94,872	270,890 438,050 410,919 487,377 381,734	23,799 32,798 44,277 48,339 44,852	63,921 108,127 66,973 75,644 64,833	0 706 706 71,376
1971 1972 1973 1974 1975	54 40 1 143 1,069	0 0 0 0	0 0 0 0	0 0 0 0	45,579 37,895 32,993 46,498 37,707	45,579 37,895 32,993 46,498 37,707	357,850 347,941 386,897 456,381 624,989	25,666 30,606 36,172 57,081 46,111	50,344 56,800 58,288 83,120 81,361	38,735 100,106 28,810 61,623 36,682
1976 1977 1978 1979 1980	139 892 39 3,235 416	0 0 0 0	0 0 0 0	0 0 0 0	60,786 78,400 56,318 73,851 81,748	60,786 78,400 56,318 73,851 81,748	614,362 511,065 671,195 650,803 1,128,416	47,862 48,926 125,224 76,849 212,974	123,838 104,280 176,855 212,826 242,118	91,096 102,083 50,289 91,374 110,679
1981 1982 1983 1984 1985	3,847 10,956 (422) 643 2,599	0 0 0 0	0 0 0 0	0 0 0 0	100,780 191,981 80,229 139,099 259,615	100,780 191,981 80,229 139,099 259,615	882,757 1,156,467 1,258,441 1,998,554 2,045,482	130,127 141,702 84,370 113,797 207,479	167,121 249,398 373,905 340,347 427,930	204,794 116,652 151,891 34,429 247,521
1986 1987 1988 1989 1990	2,595 2,595 2,600 2,672 2,687	0 0 (4) 469,152 549,796	0 0 339 178,131 244,875	0 (19) 236,071 121,678	229,525 309,361 331,251 373,280 424,704	229,525 309,361 331,567 1,256,634 1,341,053	1,834,776 2,101,630 2,077,441 2,167,947 2,217,344	285,914 163,720 186,325 163,549 251,429	305,164 400,565 300,009 320,843 355,010	159,064 283,177 370,915 497,042 570,185
1991 1992 1993 1994 1995	2,730 2,774 2,529 3,058 3,210	647,722 440,608 441,439 425,495 426,941	302,250 189,336 294,391 198,368 282,080	204,076 263,880 216,529 204,107 150,656	426,146 279,482 290,520 363,463 295,362	1,580,194 1,173,306 1,242,879 1,191,433 1,155,039	1,790,611 2,061,502 3,924,978 4,646,145 3,837,914	152,450 405,988 621,705 302,180 315,965	95,651 409,482 480,797 404,790 564,884	92,656 362,928 400,631 406,878 330,013
1996 1997 1998 1999 2000	3,370 3,437 3,506 3,576 3,576	716,317 839,127 906,387 905,341 884,775	267,162 253,018 247,903 255,450 248,880	212,420 401,623 423,115 436,692 426,955	309,431 481,929 360,741 369,333 361,048	1,505,330 1,975,697 1,938,146 1,966,816 1,921,658	3,347,851 3,568,028 3,662,589 3,783,045 3,698,330	305,639 412,056 424,508 438,463 427,466	623,060 636,116 668,786 691,133 673,783	533,293 544,245 547,604 595,986 592,067
2001 2002 2003 2004 2005	3,576 3,576 3,576 3,576 3,576	884,079 886,241 886,121 886,622 885,512	248,876 248,890 248,889 248,892 248,886	426,591 427,721 427,657 427,919 427,339	360,860 361,444 361,411 361,547 361,248	1,920,406 1,924,296 1,924,078 1,924,980 1,922,985	3,697,732 3,699,599 3,699,494 3,699,927 3,698,969	427,408 427,596 427,586 427,629 427,532	673,620 674,147 674,117 674,240 673,969	591,460 593,535 593,390 593,994 592,657
2006 2007 2008 2009 2010	3,576 3,576 3,576 3,576 3,576	885,671 885,499 885,696 885,711 885,703	248,887 248,886 248,888 248,888 248,888	427,422 427,332 427,435 427,443 427,439	361,291 361,245 361,298 361,302 361,300	1,923,271 1,922,962 1,923,317 1,923,344 1,923,330	3,699,105 3,698,957 3,699,126 3,699,140 3,699,133	427,546 427,531 427,548 427,550 427,548	674,008 673,967 674,014 674,018 674,016	592,847 592,640 592,877 592,896 592,887
2011 2012 2013 2014 2015	3,576 3,576 3,576 3,576 3,576	885,714 885,734 886,440 887,238 887,413	248,888 248,885 248,889 248,895 248,896	427,444 427,455 427,824 428,240 428,332	361,304 361,307 361,498 361,711 361,759	1,923,350 1,923,381 1,924,651 1,926,084 1,926,400	3,699,142 3,699,122 3,699,732 3,700,418 3,700,571	427,550 427,546 427,608 427,674 427,693	674,019 674,017 674,189 674,374 674,426	592,899 592,920 593,770 594,687 594,939
2016 2017 2018 2019 2020	3,576 3,576 3,576 3,576 3,576	887,369 887,405 887,383 887,380 887,106	248,896 248,896 248,896 248,896 248,895	428,308 428,327 428,315 428,314 428,170	361,747 361,758 361,751 361,751 361,677	1,926,320 1,926,386 1,926,345 1,926,341 1,925,848	3,700,533 3,700,564 3,700,545 3,700,542 3,700,306	427,689 427,692 427,690 427,689 427,666	674,415 674,423 674,418 674,417 674,351	594,887 594,930 594,902 594,899 594,569
2021 2022 2023 2024 2025	3,576 3,576 3,576 3,576 3,576	887,084 887,069 887,159 887,063 887,136	248,895 248,895 248,895 248,895 248,895	428,160 428,152 428,198 428,148 428,186	361,672 361,668 361,692 361,666 361,686	1,925,811 1,925,784 1,925,944 1,925,772 1,925,903	3,700,287 3,700,274 3,700,352 3,700,268 3,700,331	427,664 427,662 427,670 427,662 427,669	674,345 674,341 674,364 674,340 674,358	594,543 594,525 594,634 594,517 594,606
2026 2027 2028 2029 2030	3,576 3,576 3,576 3,576 3,576	887,088 886,962 886,954 887,030 886,794	248,895 248,894 248,894 248,894 248,893	428,161 428,096 428,092 428,131 428,008	361,673 361,638 361,636 361,658 361,594	1,925,817 1,925,590 1,925,576 1,925,713 1,925,289	3,700,290 3,700,181 3,700,175 3,700,240 3,700,037	427,664 427,653 427,653 427,659 427,639	674,346 674,316 674,314 674,332 674,275	594,547 594,396 594,386 594,476 594,194
2031 2032 2033 2034 2035	3,576 3,576 3,576 3,576 3,576	886,854 886,913 886,841 886,901 886,857	248,893 248,894 248,893 248,893 248,893	428,040 428,070 428,032 428,064 428,040	361,611 361,625 361,606 361,623 361,611	1,925,398 1,925,502 1,925,372 1,925,481 1,925,401	3,700,089 3,700,139 3,700,077 3,700,129 3,700,091	427,643 427,649 427,643 427,647 427,644	674,290 674,304 674,286 674,301 674,290	594,266 594,336 594,250 594,324 594,270
Total	193,726	38,683,838	11,673,396	18,274,388	19,358,800	87,990,422	189,891,122	21,490,613	33,721,959	28,615,091

TABLE B-11 Minimum OMP&R Costs of Each Aqueduct Reach to Be Reimbursed through Minimum OMP&R Component of Transportation Charge
(Dollars)

Sheet 2 of 8

					(Dollars)				Sheet 2 of 8
		South Ba	ay Aqueduct	(continued)				a Aqueduct	
	D/- 0	D6-7	D/- 0	D/- 0	T-1-1	Decet 4		paquin Division	
Calendar	Reach 6	Reach 7	Reach 8	Reach 9	Total	Reach 1	Reach 2A	Reach 2B	Subtotal
Year	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1961 1962 1963 1964 1965	0 0 0 0 2,634	0 0 0 0 6,490	0 0 0 0 4,704	0 0 0 0 12,904	0 42,918 168,358 184,729 378,874	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1966	4,707	10,328	9,233	25,519	408,397	0	0	0	0
1967	2,712	7,659	10,812	34,347	634,505	0	0	0	0
1968	3,109	7,960	10,166	40,372	584,482	1,001,998	228,359	103,116	1,333,473
1969	3,944	5,975	8,795	38,566	669,346	933,116	301,596	188,194	1,422,906
1970	2,464	(1,991)	6,870	28,210	598,348	971,602	306,198	151,539	1,429,339
1971	3,116	9,394	9,895	31,068	526,068	1,103,021	254,786	113,694	1,471,501
1972	5,125	10,247	12,054	44,699	607,578	1,107,855	230,906	110,109	1,448,870
1973	4,178	7,500	4,890	43,816	570,551	1,150,864	221,445	100,221	1,472,530
1974	7,812	7,564	5,523	48,054	727,158	1,272,034	231,383	117,156	1,620,573
1975	18,120	14,683	18,325	68,377	908,648	1,434,736	455,110	201,075	2,090,921
1976	10,873	5,557	19,920	49,921	963,429	1,519,801	217,348	453,400	2,190,549
1977	(240)	2,228	8,391	89,579	866,312	1,913,643	292,380	196,564	2,402,587
1978	(1,404)	16,766	(5,313)	104,078	1,137,690	1,860,456	306,503	188,214	2,355,173
1979	1,269	29,294	7,351	106,835	1,176,601	1,847,993	231,339	145,205	2,224,537
1980	3,621	24,270	17,404	110,852	1,850,334	2,363,147	472,660	247,608	3,083,415
1981	4,038	20,109	17,586	98,143	1,524,675	2,651,837	435,371	154,231	3,241,439
1982	2,236	22,870	21,919	202,590	1,913,834	3,192,096	599,785	244,662	4,036,543
1983	(2,047)	48,781	45,573	216,434	2,177,348	4,246,423	802,903	273,079	5,322,405
1984	4,449	44,017	23,563	455,058	3,014,214	4,374,289	810,669	291,622	5,476,580
1985	13,097	74,565	57,920	238,066	3,312,060	5,138,714	811,987	278,258	6,228,959
1986	11,614	31,084	46,864	363,357	3,037,837	5,376,105	995,477	391,402	6,762,984
1987	15,273	25,182	37,949	416,375	3,443,871	5,293,678	968,481	366,208	6,628,367
1988	30,214	41,049	49,157	335,478	3,390,588	5,350,578	822,635	360,463	6,533,676
1989	9,740	54,866	114,259	179,357	3,507,603	5,768,764	850,932	907,803	7,527,499
1990	31,157	69,391	119,276	247,712	3,861,504	6,743,967	1,063,541	882,386	8,689,894
1991	22,422	(18,755)	99,508	261,929	2,496,472	6,717,078	1,053,028	578,512	8,348,618
1992	26,791	332,051	98,660	186,609	3,884,011	9,395,721	1,419,388	673,747	11,488,856
1993	24,840	181,572	94,143	315,983	6,044,649	10,304,181	1,371,475	903,472	12,579,128
1994	28,391	90,799	80,996	416,088	6,376,267	8,175,709	1,326,005	804,827	10,306,541
1995	29,199	63,896	80,143	372,246	5,594,260	10,099,533	2,374,369	956,513	13,430,415
1996	19,059	71,690	70,895	311,842	5,283,329	9,874,328	2,682,759	696,355	13,253,442
1997	82,047	165,340	124,755	483,769	6,016,356	11,278,092	2,119,944	822,328	14,220,364
1998	80,258	73,870	90,517	478,964	6,027,096	11,579,134	2,181,212	1,107,321	14,867,667
1999	83,575	76,680	93,214	494,922	6,257,018	11,755,205	2,157,441	1,043,779	14,956,425
2000	81,306	74,715	90,753	427,606	6,066,026	11,319,399	2,100,192	698,224	14,117,815
2001	81,306	74,715	90,753	427,606	6,064,600	11,316,391	2,098,869	697,820	14,113,080
2002	81,306	74,715	90,753	427,606	6,069,257	11,325,777	2,103,854	699,344	14,128,975
2003	81,306	74,715	90,753	427,606	6,068,967	11,325,250	2,103,570	699,256	14,128,076
2004	81,306	74,715	90,753	427,606	6,070,170	11,327,428	2,104,746	699,616	14,131,790
2005	81,306	74,715	90,753	427,606	6,067,507	11,322,605	2,102,145	698,821	14,123,571
2006	81,306	74,715	90,753	427,606	6,067,886	11,323,294	2,102,514	698,933	14,124,741
2007	81,306	74,715	90,753	427,606	6,067,475	11,322,547	2,102,113	698,812	14,123,472
2008	81,306	74,715	90,753	427,606	6,067,945	11,323,401	2,102,573	698,952	14,124,926
2009	81,306	74,715	90,753	427,606	6,067,984	11,323,467	2,102,610	698,964	14,125,041
2010	81,306	74,715	90,753	427,606	6,067,964	11,323,432	2,102,591	698,957	14,124,980
2011	81,306	74,715	90,753	427,606	6,067,990	11,323,478	2,102,615	698,965	14,125,058
2012	81,305	74,714	90,752	427,601	6,067,977	11,323,483	2,102,659	698,979	14,125,121
2013	81,305	74,714	90,752	427,601	6,069,671	11,326,550	2,104,311	699,483	14,130,344
2014	81,305	74,714	90,752	427,601	6,071,525	11,329,995	2,105,852	699,954	14,135,801
2015	81,305	74,714	90,752	427,601	6,072,001	11,330,769	2,106,587	700,180	14,137,536
2016	81,305	74,714	90,752	427,601	6,071,896	11,330,580	2,106,485	700,149	14,137,214
2017	81,305	74,714	90,752	427,601	6,071,981	11,330,734	2,106,569	700,174	14,137,477
2018	81,305	74,714	90,752	427,601	6,071,927	11,330,636	2,106,515	700,157	14,137,308
2019	81,305	74,714	90,752	427,601	6,071,919	11,330,623	2,106,508	700,156	14,137,287
2020	81,305	74,714	90,752	427,601	6,071,264	11,329,432	2,105,867	699,960	14,135,259
2021	81,305	74,714	90,752	427,601	6,071,211	11,329,339	2,105,816	699,943	14,135,098
2022	81,305	74,714	90,752	427,601	6,071,174	11,329,274	2,105,783	699,936	14,134,993
2023	81,305	74,714	90,752	427,601	6,071,392	11,329,666	2,105,991	699,998	14,135,655
2024	81,305	74,714	90,752	427,601	6,071,159	11,329,245	2,105,767	699,929	14,134,941
2025	81,305	74,714	90,752	427,601	6,071,336	11,329,564	2,105,937	699,982	14,135,483
2026	81,305	74,714	90,752	427,601	6,071,219	11,329,355	2,105,823	699,947	14,135,125
2027	81,305	74,714	90,752	427,601	6,070,918	11,328,810	2,105,533	699,857	14,134,200
2028	81,305	74,714	90,752	427,601	6,070,900	11,328,776	2,105,513	699,852	14,134,141
2029	81,305	74,714	90,752	427,601	6,071,079	11,329,104	2,105,689	699,905	14,134,698
2030	81,305	74,714	90,752	427,601	6,070,517	11,328,081	2,105,139	699,737	14,132,957
2031	81,305	74,714	90,752	427,601	6,070,660	11,328,342	2,105,279	699,779	14,133,400
2032	81,305	74,714	90,752	427,601	6,070,800	11,328,596	2,105,414	699,821	14,133,831
2033	81,305	74,714	90,752	427,601	6,070,628	11,328,281	2,105,247	699,769	14,133,297
2034	81,305	74,714	90,752	427,601	6,070,773	11,328,547	2,105,391	699,813	14,133,751
2035	81,305	74,714	90,752	427,601	6,070,667	11,328,355	2,105,286	699,782	14,133,423
Total	3,515,385	4,322,697	4,783,001	22,345,815	308,685,683	563,568,304	104,360,768	39,236,969	707,166,041

TABLE B-11

# Minimum OMP&R Costs of Each Aqueduct Reach to Be Reimbursed through Minimum OMP&R Component of Transportation Charge (Dollars)

					llars)		Sheet 3 of 8		
				California	Aqueduct (c	ontinued)			
		San Luis						San Joaquin	
Calendar	Reach 3	Reach 4	Reach 5	Reach 6	Reach 7	Subtotal	Reach 8C	Reach 8D	Reach 9
Year	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)
1961	0	0	0	0	0	0	0	0	0
1962 1963	0	0	0	0	0	0	0	0	0
1964 1965	0	0	0	0	0	0	0	0	0 0
1966	0	0	0	0	0	0	0	0	0
1967	0 120,038	0 428,308	0 130,105	0 44,591	0 104,033	0 827,075	0	0	0
1968 1969	90,033	460,907	184,467	35,696	235,322	1,006,425	22,013	134,760	86,103
1970	89,547	484,300	226,002	66,070	192,582	1,058,501	26,207	156,981	128,273
1971 1972	99,917 116,708	541,574 647,979	175,592 174,519	64,193 73,670	158,170 154,783	1,039,446 1,167,659	32,312 35,031	190,753 187,242	118,372 130,396
1973	116,791	611,705	158,145	58,344	153,955	1,098,940	51,150	225,747	127,530
1974 1975	120,309 133,593	671,455 839,285	150,835 178,974	63,905 81,478	150,230 157,586	1,156,734 1,390,916	34,752 78,523	199,127 250,377	131,298 159,006
1976	54,938	883,956	220,832	90,305	174,835	1,424,866	39,348	133,933	123,424
1977 1978	73,331 45,867	1,114,465 898,992	270,734 203,261	98,132 106,938	196,311 203,079	1,752,973 1,458,137	38,086 45,552	121,348 178,805	178,078 129,928
1979	223,973	842,355	144,055 222,942	99,670 127.625	180,734	1,490,787	69,973 57,726	150,679	129,756
1980	243,507	1,173,699	,-	,	281,860	2,049,633	,	274,848	185,155
1981 1982	266,787 279,263	1,067,173 1,240,465	192,600 209,336	90,373 114,408	1,611,941 1,433,163	3,228,874 3,276,635	80,124 59,425	198,366 269,115	144,296 233,520
1983 1984	215,365 241,183	1,950,400 2,228,195	339,626 335,406	131,313 163,942	2,143,589 2,111,502	4,780,293 5,080,228	49,448 42,186	383,441 459,341	223,042 301,458
1985	322,373	2,881,735	363,611	177,564	1,607,182	5,352,465	64,900	548,818	254,943
1986	423,121	2,993,266	484,124	255,459	615,928	4,771,898	93,883	502,562	611,010
1987 1988	369,850 365,492	3,070,075 2,977,330	423,192 456,647	235,867 231,714	441,027 639,236	4,540,011 4,670,419	114,401 96,759	417,613 379,325	450,572 418,258
1989 1990	263,009 396,460	3,196,419 3,964,788	394,408 578,238	333,430 464,880	634,084 730,688	4,821,350 6,135,054	83,312 111,180	389,277 439,027	400,475 517,496
1991	250,709	4,330,654	543,478	727,991	765,390	6,618,222	104,389	496,659	465,838
1992	298,877	3,759,154	789,498	361,245	809,019	6,017,793	117,837	507,885	414,319
1993 1994	438,887 284,193	4,367,110 4,367,914	1,008,710 816,522	551,984 397,047	734,793 493,155	7,101,484 6,358,831	230,328 125,428	746,089 602,493	490,423 572,702
1995	117,584	4,965,707	1,054,099	436,232	1,343,369	7,916,991	185,086	654,351	430,007
1996 1997	977,324 692,039	4,445,431 6,058,097	940,292 1,040,248	624,428 484,984	1,123,784 677,632	8,111,259 8,953,000	157,155 286,052	569,385 846,608	501,008 701,613
1998	803,166	4,959,699	1,245,827	501,975	643,140	8,153,807	238,293	908,093	745,712
1999 2000	839,163 773,867	4,458,640 4,399,362	1,202,578 899,911	431,793 425,356	588,490 579,673	7,520,664 7,078,169	249,372 243,145	948,011 925,231	777,349 759,043
2001	772,463	4,393,099	899,911	424,917	579,116	7,069,506	243,130	924,504	758,363
2002 2003	777,748 777,448	4,413,171 4,412,045	899,911 899,911	426,579 426,485	581,217 581,097	7,098,626 7,096,986	243,184 243,181	927,247 927,091	760,931 760,785
2004 2005	778,695 775,937	4,416,714 4,406,375	899,911 899,911	426,877 426,011	581,592 580,498	7,103,789 7,088,732	243,194 243,166	927,736 926,308	761,389 760,052
	•		•	,	•		-,	•	,
2006 2007	776,328 775,903	4,407,849 4,406,251	899,911 899,911	426,134 425,999	580,652 580,483	7,090,874 7,088,547	243,169 243,166	926,510 926,290	760,241 760,034
2008 2009	776,390 776,427	4,408,080 4,408,221	899,911 899,911	426,153 426,164	580,677 580,693	7,091,211 7,091,416	243,169 243,170	926,541 926,561	760,271 760,289
2010	776,408	4,408,144	899,911	426,158	580,684	7,091,305	243,169	926,551	760,280
2011 2012	776,435 776,496	4,408,246 4,408,485	899,911 899.901	426,166 426,184	580,696 580,719	7,091,454 7,091,785	243,170 243,168	926,565 926.593	760,292 760,319
2013	778,248	4,415,055	899,901	426,736	581,415	7,101,355	243,186	927,502	761,170
2014 2015	779,881 780,660	4,422,244 4,424,101	899,901 899,901	427,248 427,494	582,062 582,373	7,111,336 7,114,529	243,203 243,210	928,347 928,754	761,961 762,341
2016	780,552	4,423,696	899,901	427,460	582,329	7,113,938	243,209	928,697	762,288
2017 2018	780,640 780,585	4,424,024 4,423,815	899,901 899,901	427,488 427,469	582,364 582,341	7,114,417 7,114,111	243,210 243,210	928,743 928,714	762,332 762,305
2019 2020	780,576 779,895	4,423,784 4,421,237	899,901 899,901	427,468 427,254	582,338 582,069	7,114,067 7,110,356	243,210 243,204	928,710 928,356	762,300 761,970
	•								
2021 2022	779,843 779,807	4,421,034 4,420,895	899,901 899,901	427,237 427,226	582,048 582,033	7,110,063 7,109,862	243,203 243,203	928,328 928,311	761,943 761,926
2023 2024	780,029 779,792	4,421,736 4,420,836	899,901 899,901	427,296 427,222	582,122 582,027	7,111,084 7,109,778	243,205 243,203	928,426 928,302	762,036 761,919
2025	779,970	4,421,518	899,901	427,278	582,100	7,110,767	243,204	928,396	762,007
2026 2027	779,851 779,542	4,421,068 4,419,902	899,901 899,901	427,240 427,142	582,051 581,928	7,110,111 7,108,415	243,203 243,200	928,333 928,172	761,948 761,798
2028	779,521	4,419,827	899,901	427,135	581,921	7,108,305	243,200	928,162	761,788
2029 2030	779,707 779,125	4,420,530 4,418,337	899,901 899,901	427,195 427,012	581,994 581,762	7,109,327 7,106,137	243,201 243,195	928,259 927,956	761,878 761,595
2031	779,275	4,418,900	899,901	427,058	581,823	7,106,957	243,197	928,033	761,668
2032 2033	779,415 779,239	4,419,440 4,418,772	899,901 899,901	427,104 427,047	581,879 581,808	7,107,739 7,106,767	243,198 243,197	928,109 928,017	761,737 761,650
2034	779,390	4,419,340	899,901	427,095	581,868	7,107,594	243,198	928,094	761,725
2035	779,281	4,418,924	899,901	427,060	581,825	7,106,991	243,197	928,037	761,671
Total	37,398,766	235,856,289	47,255,459	23,092,393	42,424,869	386,027,776	11,775,058	45,865,545	37,687,605

TABLE B-11

## Minimum OMP&R Costs of Each Aqueduct Reach to Be Reimbursed through Minimum OMP&R Component of Transportation Charge (Dollars)

				Califori	nia Aqueduct	(continued)			
1				South San	Joaquin Divis	sion (continued	')		
	Reach 10A	Reach 11B	Reach 12D			Reach 14A	<u></u>	Reach 14C	Reach 15A
Calendar Year	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)
7007	(20)	(00)	(01)	(02)	(00)	(0.1)	(00)	(00)	(07)
1961 1962	0	0	0	0	0	0	0	0	0 0
1963	0	0	0	0	0	0	0	0	0
1964 1965	0	0 0	0 0	0	0	0	0	0 0	0
	-								
1966 1967	0 0	0	0 0	0 0	0	0 0	0 0	0 0	0 0
1968 1969	0 83,706	0 59,077	0 0	0	0	0 0	0	0 0	0 0
1970	118,046	85,758	94,171	123,374	152,424	ő	0	0	0
1971	129,811	80,282	95,075	91,389	167,142	691,791	151,979	111,623	529,723
1972 1973	117,625	84,287	98,647	115,592	146,096 221,385	877,535 961,855	124,831 120,106	101,479 99,429	609,058 692,748
1974	117,706 141,658	92,257 98,103	74,238 74,914	114,843 193,523	141,540	898,272	143,866	115,649	853,098
1975	207,908	124,105	61,799	117,194	108,154	1,156,757	180,614	119,889	988,045
1976	139,134	69,715	33,655	147,908	134,063	1,124,051	177,086	114,133	1,037,799
1977 1978	194,086 168,634	108,644 106,702	91,547 72,585	175,039 170,578	137,975 151,120	1,397,006 1,254,043	203,837 139,662	119,467 132,224	1,339,196 1,265,813
1979 1980	175,107	85,942 120,896	56,331	174,147 167,249	150,029	1,490,377	201,935	260,981 238,607	1,216,063 1,436,441
	284,207		123,120		164,749	1,987,055	189,132	,	
1981 1982	200,043 264,977	77,034 158,196	33,420 142,657	113,272 224,190	171,780 224,079	1,735,427 1,793,324	163,799 195,002	161,086 15,709	1,793,267 1,933,830
1983	308,758	136,321	124,693	203,707	217,278	2,422,935	199,754	181,913	2,551,236
1984 1985	397,252 346,406	164,515 252,692	109,487 206,439	188,738 239,944	245,949 360,512	3,310,399 3,468,959	329,448 237,078	204,173 180,032	3,215,114 3,432,670
1986	438,930	266,509	259,983	362,230	349,110	3,780,774	321,006	360,173	3,574,540
1987	493,355	336,865	329,103	472,030	325,052	3,690,709	463,843	241,675	4,037,604
1988 1989	532,804 732,702	291,049 267,764	220,849 207,008	374,858 595,388	318,464 380,399	3,472,714 3,523,067	411,088 334,375	313,790 221,233	3,769,386 3,758,962
1990	653,572	364,163	225,976	481,307	678,633	3,989,466	439,390	212,417	4,348,452
1991	716,191	328,555	269,785	371,202	433,153	4,277,711	424,536	273,049	4,533,877
1992 1993	570,485 723,543	334,294 413,984	270,564 278,545	409,018 497,191	423,390 594,466	4,720,239 5,203,474	729,337 663,560	571,516 423,423	4,261,373 5,281,357
1994	703,683	346,692	239,920	482,432	446,132	3,984,767	414,825	254,280	3,713,676
1995	878,275	403,259	240,477	620,025	505,068	4,601,136	310,243	311,318	3,985,938
1996	1,025,931	418,319	276,337	598,307	588,112	4,851,248	280,294	235,825 687,522	4,514,254
1997 1998	1,017,758 857,676	588,524 565,299	556,715 669,867	741,718 959,858	683,360 929,316	5,727,666 5,592,018	716,272 778,593	703,868	5,383,737 5,499,332
1999 2000	893,026 782,648	589,536 575,427	696,927 531,550	1,000,831 818,847	971,390 859,120	5,779,877 5,593,991	772,579 719,422	600,412 496,874	5,595,888 5,450,931
2001 2002	781,917 784,673	575,025 576,544	530,898 533,358	818,426 820,012	858,524 860,770	5,590,957 5,600,740	718,689 721,262	496,338 498,220	5,449,106 5,454,842
2003	784,517	576,457	533,218	819,922	860,641	5,600,190	721,115	498,114	5,454,522
2004 2005	785,165 783,728	576,816 576,024	533,798 532,516	820,296 819,469	861,171 860,001	5,602,471 5,597,421	721,719 720,379	498,555 497,574	5,455,853 5,452,901
2006	783,933	576,136	532,698	819,585	860,166	5,598,143	720,570	497,714	5,453,322
2007	783,711	576,013	532,500	819,459	859,986	5,597,359	720,363	497,562	5,452,865
2008 2009	783,965 783,986	576,154 576,165	532,727 532,745	819,604 819,616	860,193 860,210	5,598,252 5,598,323	720,601 720,619	497,735 497,750	5,453,389 5,453,430
2010	783,975	576,159	532,735	819,610	860,201	5,598,284	720,609	497,741	5,453,407
2011	783,989	576,167	532,748	819,618	860,213	5,598,335	720,622	497,752	5,453,437
2012 2013	784,017 784,931	576,178 576,682	532,775 533,590	819,630 820,156	860,231 860,976	5,598,410 5,601,620	720,648 721,501	497,772 498,395	5,453,457 5,455,334
2014 2015	785,781 786,189	577,151 577,375	534,348 534,713	820,645 820,879	861,669 862,000	5,605,002 5,606,038	722,265 722,674	498,953 499,255	5,457,389 5,457,915
								,	
2016 2017	786,133 786,178	577,345 577,369	534,662 534,703	820,847 820,873	861,954 861,993	5,605,839 5,606,002	722,622 722,663	499,216 499,248	5,457,799 5,457,894
2018	786,150	577,355	534,677	820,857	861,968	5,605,897	722,638	499,227	5,457,833 5,457,826
2019 2020	786,146 785,790	577,352 577,157	534,673 534,357	820,854 820,651	861,965 861,676	5,605,883 5,604,640	722,634 722,303	499,223 498,981	5,457,826 5,457,099
2021	785,763	577,141	534,333	820,634	861,653	5,604,539	722,276	498,963	5,457,041
2022	785,745	577,130	534,315	820,623	861,638	5,604,472	722,259	498,950	5,457,000
2023 2024	785,861 785,736	577,195 577,126	534,419 534,308	820,690 820,618	861,732 861,631	5,604,884 5,604,443	722,368 722,250	499,030 498,944	5,457,241 5,456,984
2025	785,830	577,177	534,391	820,671	861,708	5,604,777	722,340	499,008	5,457,179
2026	785,768	577,143	534,336	820,637	861,657	5,604,556	722,281	498,965	5,457,049
2027 2028	785,606 785,595	577,055 577,048	534,192 534,182	820,543 820,538	861,525 861,516	5,603,987 5,603,950	722,130 722,120	498,856 498,847	5,456,717 5,456,695
2029 2030	785,693 785,388	577,102 576,935	534,269 533,998	820,593 820,419	861,596 861,348	5,604,295 5,603,222	722,212 721,927	498,915 498,707	5,456,897 5,456,269
2031 2032	785,467 785,541	576,977 577,019	534,067 534,134	820,464 820,506	861,411 861,473	5,603,497 5,603,763	722,001 722,070	498,760 498,812	5,456,430 5,456,584
2033	785,448	576,967	534,051	820,453	861,398	5,603,434	721,982	498,748	5,456,393
2034 2035	785,527 785,470	577,011 576,979	534,122 534,070	820,498 820,466	861,461 861,414	5,603,714 5,603,509	722,056 722,003	498,802 498,761	5,456,556 5,456,436
			<u> </u>		*				
Total	41,894,955	28,182,394	25,448,010	40,055,291	41,519,109	289,439,491	35,796,263	25,512,162	281,554,499

## Minimum OMP&R Costs of Each Aqueduct Reach to Be Reimbursed through Minimum OMP&R Component of Transportation Charge (Dollars)

				(Dolla	-				Sheet 5 of 8
	0	and the annulus	Ì	California A	Aqueduct (contin	ued)			
		an Joaquin (continued)	Т	ehachapi Divi	sion		Mojave	Division	
Calendar	Reach 16A	Subtotal	Reach 17E	Reach 17F	Subtotal	Reach 18A	Reach 19	Reach 19C	Reach 20A
Year	(38)	(39)	(40)	(41)	(42)	(43)	(44)	(45)	(46)
1961	0	0	0	0	0	0	0	0	0
1962 1963	0	0	0	0	0	0	0	0	0
1964 1965	0 0	0	0	0 0	0	0 0	0	0 0	0 0
1966	0	0	0	0	0	0	0	0	0
1967 1968	0	0	0	0	0	0	0	0	0
1969 1970	0 0	385,659 885,234	0 0	0 0	0	0	0	0	0
1971 1972	10,291 1,106,884	2,400,543 3,734,703	3,471 1,424,782	0 28,127	3,471 1,452,909	0 36,699	0 135,675	0	0 130,711
1973	1,243,941	4,142,935	1,777,260	49,949	1,827,209	36,207	146,739	0	161,838
1974 1975	1,343,972 1,537,862	4,369,772 5,090,233	2,298,091 2,403,430	16,259 35,193	2,314,350 2,438,623	30,525 40,588	90,404 122,584	0	115,571 137,684
1976 1977	1,727,428 1.961.081	5,001,677 6,065,390	2,776,194 3,845,464	126,653 83,936	2,902,847 3,929,400	118,610 93,565	201,215 226,906	0	182,927 180,884
1978	1,922,950	5,738,596	2,954,313	42,637	2,996,950	91,815	200,759	0	215,673 261,205
1979 1980	1,798,482 2,229,892	5,959,802 7,459,077	3,539,192 4,745,363	45,997 54,806	3,585,189 4,800,169	99,670 116,487	307,386 446,175	0	290,719
1981 1982	2,747,390 2,960,714	7,619,304 8,474,738	5,469,466 6,347,966	64,906 56,016	5,534,372 6,403,982	316,675 447,834	585,358 639,020	0	325,381 276,072
1983	4,303,348	11,305,874	14,154,969	96,401	14,251,370	345,246	564,768	0	368,192
1984 1985	5,075,391 5,694,050	14,043,451 15,287,443	18,442,387 18,186,232	77,216 137,928	18,519,603 18,324,160	267,573 298,927	563,523 475,002	0	413,690 450,422
1986 1987	5,781,596 5,533,893	16,702,306 16,906,715	19,301,659 16,751,176	109,932 98,306	19,411,591 16,849,482	706,253 1,266,246	350,750 558,178	0	347,575 817,806
1988	5,192,216 5,469,239	15,791,560	17,901,687	138,276	18,039,963	1,244,177 1,058,793	560,662	0	584,865
1989 1990	6,377,776	16,363,201 18,838,855	17,667,487 19,588,022	88,222 99,451	17,755,709 19,687,473	1,303,208	282,475 228,713	0	366,213 469,204
1991 1992	5,743,768 6,438,905	18,438,713 19,769,162	19,535,371 18,052,998	131,086 279,341	19,666,457	1,430,229 1,164,877	665,170 738,194	0	1,024,786 666,005
1993	7,608,405	23,154,788	18,973,969	199,282	18,332,339 19,173,251	1,878,447	606,889	0	1,232,159
1994 1995	7,115,968 6,567,838	19,002,998 19,693,021	17,121,937 19,577,160	204,775 190,505	17,326,712 19,767,665	1,696,941 1,276,975	762,687 608,155	0	1,144,959 1,935,634
1996 1997	7,187,760 7,840,346	21,203,935 25,777,891	19,107,966 22,889,141	216,369 472,651	19,324,335 23,361,792	1,294,162 2,085,485	608,723 1,084,799	0	1,085,755 2,059,325
1998	8,353,014	26,800,939	23,981,838	543,222	24,525,060	1,639,963	853,393	0	1,291,656 1,384,883
1999 2000	8,487,355 8,000,307	27,362,553 25,756,536	23,956,871 23,294,026	374,157 164,922	24,331,028 23,458,948	1,756,080 1,669,022	896,515 887,107	0	1,358,111
2001 2002	7,995,806 8,010,159	25,741,683 25,791,942	23,288,679 23,305,298	164,733 165,333	23,453,412 23,470,631	1,667,567 1,672,066	880,197 901,291	0	1,353,671 1,367,225
2002 2003 2004	8,009,351 8,012,700	25,789,104 25,800,863	23,304,369 23,308,222	165,299 165,440	23,469,668 23,473,662	1,671,816 1,672,865	900,086 905,057	0	1,366,450 1,369,644
2004	8,005,276	25,774,815	23,299,686	165,128	23,464,814	1,670,535	893,928	0	1,362,495
2006 2007	8,006,336 8,005,179	25,778,523 25,774,487	23,300,903 23,299,582	165,175 165,124	23,466,078 23,464,706	1,670,867 1,670,504	895,524 893,759	0	1,363,520 1,362,386
2008 2009	8,006,497 8,006,604	25,779,098	23,301,093 23,301,211	165,180 165,186	23,466,273 23,466,397	1,670,920 1,670,953	895,750 895,940	0	1,363,663 1,363,789
2010	8,006,544	25,779,468 25,779,265	23,301,147	165,181	23,466,328	1,670,932	895,809	0	1,363,702
2011 2012	8,006,619 8,006,742	25,779,527 25,779,940	23,301,230 23,301,308	165,187 165,191	23,466,417 23,466,499	1,670,955 1,671,000	895,918 896,274	0	1,363,774 1,363,987
2013 2014	8,011,468 8,016,090	25,796,511 25,812,804	23,306,735 23,312,862	165,390 165.555	23,472,125 23.478.417	1,672,484 1.674.051	903,388 909,521	0	1,368,560 1,372,499
2015	8,017,972	25,819,315	23,314,206	165,662	23,479,868	1,674,526	913,187	ő	1,374,855
2016 2017	8,017,676 8,017,917	25,818,287 25,819,125	23,313,871 23,314,142	165,652 165,661	23,479,523 23,479,803	1,674,431 1,674,510	912,714 913,128	0	1,374,551 1,374,814
2018 2019	8,017,763 8,017,741	25,818,594 25,818,517	23,313,969 23,313,943	165,654 165,653	23,479,623 23,479,596	1,674,458 1,674,455	912,840 912,848	0	1,374,634 1,374,638
2020	8,015,910	25,812,094	23,311,841	165,576	23,477,417	1,673,876	909,986	ő	1,372,798
2021 2022	8,015,763 8,015,664	25,811,580 25,811,236	23,311,672 23,311,557	165,572 165,565	23,477,244 23,477,122	1,673,831 1,673,801	909,830 909,732	0	1,372,697 1,372,635
2023 2024	8,016,269 8,015,618	25,813,356 25,811,082	23,312,252 23,311,508	165,591 165,563	23,477,843 23,477,071	1,673,992 1,673,788	910,628 909,649	0	1,373,210 1,372,584
2025	8,016,113	25,812,801	23,312,072	165,585	23,477,657	1,673,944	910,389	ő	1,373,058
2026 2027	8,015,790 8,014,950	25,811,666 25,808,731	23,311,700 23,310,737	165,574 165,535	23,477,274 23,476,272	1,673,840 1,673,575	909,910 908,591	0	1,372,749 1,371,901
2028 2029	8,014,896 8,015,407	25,808,537 25,810,317	23,310,676 23,311,257	165,533 165,556	23,476,209 23,476,813	1,673,557 1,673,720	908,507 909,322	0	1,371,848 1,372,373
2030	8,013,823	25,804,782	23,309,445	165,486	23,474,931	1,673,223	906,901	ő	1,370,815
2031 2032	8,014,233 8,014,618	25,806,205 25,807,564	23,309,909 23,310,356	165,504 165,521	23,475,413 23,475,877	1,673,351 1,673,475	907,494 908,142	0	1,371,198 1,371,612
2033 2034	8,014,137 8,014,548	25,805,875 25,807,312	23,309,803 23,310,273	165,501 165,519	23,475,304 23,475,792	1,673,323 1,673,451	907,437 908,032	0	1,371,160 1,371,541
2035	8,014,247	25,806,260	23,309,930	165,504	23,475,434	1,673,359	907,571	ŏ	1,371,246
Total	417,798,488	1,322,528,870	1,201,847,332	10,016,590	1,211,863,922	82,359,280	46,067,204	0	67,212,187

TABLE B-11

### Minimum OMP&R Costs of Each Aqueduct Reach to Be Reimbursed through Minimum OMP&R Component of Transportation Charge (Dollars)

Mojave Division (Continued)           Calendar Year         Reach 20B         Reach 21         Reach 22A         Reach 22B         Reach 23         Reach 24         Subtotal         Reach 24           1961         0         0         0         0         0         0         0           1962         0         0         0         0         0         0         0           1963         0         0         0         0         0         0         0           1964         0         0         0         0         0         0         0	Santa Ar each 25 (54)	na Division Reach 26A
Calendar Year         (47)         (48)         (49)         (50)         (51)         (52)         (53)           1961 1962 1963 0         0 <td< th=""><th></th><th>Reach 26A</th></td<>		Reach 26A
1961 0 0 0 0 0 0 0 0 0 1962 0 0 0 0 0 0 0 0 1963 0 0 0 0 0 0 0 0 0	(54)	
1962	. ,	(55)
1963 0 0 0 0 0 0 0	0	0
1 1964 1 0 0 0 0 0 0 0 0	0	0
1965 0 0 0 0 0 0	0 0	0 0
1966 0 0 0 0 0 0 0	0	0
1967   0 0 0 0 0 0 0 0 0 0 1968   0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0	0 0
1969	0	0
1971 0 0 0 0 0 0	0	0
1972         120,271         75,768         80,436         1,036,831         51,520         362,153         2,030,064           1973         148,631         60,641         66,539         1,283,816         65,475         353,262         2,323,148	26 20,541	578 679,328
1974 88,200 65,007 77,667 1,477,946 96,340 334,302 2,375,962 1975 118,898 135,462 77,825 1,630,554 111,141 419,450 2,794,186	24,380 29,337	799,400 885,021
1976 151,555 106,314 131,007 1,598,071 107,787 304,638 2,902,124		1,103,139
1977 112,589 98,757 86,279 1,882,080 71,228 48,359 2,800,647	51,356 62,584	1,412,740
1978         120,584         109,271         71,763         2,211,965         72,179         637,401         3,731,410           1979         194,104         203,078         121,586         2,104,748         76,960         202,566         3,571,303	67,186 84,462	1,159,950 1,235,149
1980 237,250 156,794 117,274 2,668,830 147,009 688,605 4,869,143	72,651	1,531,691
1981         292,357         181,221         119,724         3,024,760         134,895         45,392         5,025,763           1982         330,816         186,291         125,561         3,250,821         299,712         624,015         6,180,142	35,662 26,852	1,570,900 1,822,263
1983     326,822     219,976     140,547     3,900,346     223,626     382,195     6,471,718       1984     330,203     267,077     146,984     4,783,988     59,337     1,106,756     7,939,131	19,017 11,319	1,665,975 2.324.915
1985 388,307 799,502 125,775 5,336,658 261,135 811,327 8,947,055	17,764	2,708,872
1986 315,442 242,085 178,795 6,191,808 156,053 515,535 9,004,296 1987 357,311 297,777 235,951 5,681,388 151,796 731,794 10,098,247	31,012 19,362	2,776,520 2,854,355
1988 399,772 331,020 149,787 6,936,404 253,852 969,403 11,429,942	36,500	3,090,943
1989     345,227     193,798     138,657     5,971,206     349,647     1,242,715     9,948,731       1990     202,088     273,565     49,037     6,859,785     436,754     1,891,031     11,713,385	30,742 25,302	3,204,600 3,337,596
1991 515,999 478,385 231,134 7,449,865 262,673 1,560,432 13,618,673	31,893	3,844,690
1992         696,414         585,081         168,196         7,113,613         317,010         637,453         12,086,843           1993         817,909         509,172         207,861         7,805,978         359,593         1,685,228         15,103,236	55,662 72,289	4,040,172 5,736,008
	105,288 95,974	6,600,449 5,794,467
1996 2,114,884 574,154 170,210 8,677,378 678,114 (210,970) 14,992,410	85,180	5,483,158
1997 1,694,681 630,941 460,377 7,741,238 1,292,367 4,857,512 21,906,725 5	572,508	4,993,376
1999 976,335 608,358 334,704 8,030,016 1,095,333 (60,044) 15,022,180	129,836 89,501	4,837,803 4,935,430
2000 802,717 597,760 329,993 7,742,191 1,082,797 2,836,460 17,306,158	60,687	4,829,238
2001         798,277         595,250         328,025         7,723,673         1,081,594         831,726         15,259,980           2002         811,831         602,912         334,036         7,780,390         1,085,335         1,890,060         16,445,146	60,687 60,687	4,827,634 4,832,621
2003 811,056 602,473 333,693 7,777,171 1,085,126 2,654,270 17,202,141 2004 814,250 604,279 335,108 7,790,454 1,085,993 125,819 14,703,469	60,687 60,687	4,832,342 4,833,498
2005 807,101 600,239 331,938 7,760,756 1,084,071 2,196,137 16,707,200	60,687	4,830,937
2006 808,126 600,818 332,391 7,765,020 1,084,346 2,753,300 17,273,912 2007 806,992 600,177 331,891 7,760,324 1,084,048 702,861 15,212,942	60,687 60,687	4,831,302 4,830,906
2008 808,269 600,898 332,458 7,765,624 1,084,388 635,974 15,157,944	60,687	4,831,359
2009         808,395         600,968         332,512         7,766,118         1,084,414         2,249,562         16,772,651           2010         808,308         600,919         332,475         7,765,790         1,084,400         1,108,783         15,631,118	60,687 60,687	4,831,394 4,831,375
2011 808,380 600,960 332,506 7,766,090 1,084,419 1,394,771 15,917,773	60,687	4,831,400
2012         808,602         601,086         332,606         7,766,949         1,084,471         1,608,710         16,133,685           2013         813,175         603,668         334,633         7,785,936         1,085,692         3,008,797         17,576,333	60,685 60,685	4,831,413 4,833,041
2014         817,114         605,896         336,379         7,801,978         1,087,071         8,827         14,613,336           2015         819,470         607,226         337,424         7,812,057         1,087,374         3,770,690         18,396,809	60,685 60,685	4,834,879 4,835,282
2016 819,166 607,055 337,291 7,810,799 1,087,298 373,964 14,997,269	60,685	4,835,182
2017   819,429 607,205 337,407 7,811,870 1,087,359 2,000,324 16,626,046   2018   819,249 607,103 337,327 7,811,141 1,087,320 532,060 15,156,132	60,685 60,685	4,835,264 4,835,211
2019 819,253 607,105 337,328 7,811,147 1,087,315 2,253,918 16,878,007 2020 817,413 606,064 336,512 7,803,586 1,086,842 2,180,679 16,787,756	60,685 60,685	4,835,203 4,834,573
	60,685	4,834,522
2022 817,250 605,973 336,438 7,802,815 1,086,778 1,659,851 16,265,273	60,685	4,834,487
2023 817,825 606,297 336,696 7,805,229 1,086,934 2,292,643 16,903,454 2024 817,199 605,944 336,416 7,802,605 1,086,766 1,091,078 15,696,029	60,685 60,685	4,834,697 4,834,473
2025 817,673 606,212 336,627 7,804,588 1,086,893 1,435,829 16,045,213	60,685	4,834,642
2026         817,364         606,038         336,490         7,803,300         1,086,810         1,895,021         16,501,522           2027         816,516         605,559         336,114         7,799,820         1,086,593         1,463,275         16,061,944	60,685 60,685	4,834,531 4,834,241
2028 816,463 605,526 336,092 7,799,603 1,086,579 2,152,158 16,750,333 2029 816,988 605,823 336,323 7,801,750 1,086,710 2,307,083 16,910,092	60,685 60,685	4,834,223 4,834,398
2030 815,430 604,942 335,633 7,795,307 1,086,302 700,441 15,288,994	60,685	4,833,854
2031 815,813 605,160 335,802 7,796,908 1,086,407 2,157,061 16,749,194 2032 816,227 605,394 335,984 7,798,590 1,086,507 1,821,361 16,417,292	60,685 60,685	4,833,993 4,834,127
2033 815,775 605,139 335,787 7,796,689 1,086,382 910,338 15,502,030	60,685	4,833,961
2034 816,156 605,356 335,955 7,798,311 1,086,489 2,542,928 17,138,219 2035 815,861 605,188 335,823 7,797,086 1,086,411 2,259,265 16,851,810	60,685 60,685	4,834,103 4,833,999
Total 45,020,349 30,928,472 16,650,666 418,640,321 49,847,349 84,319,889 841,045,717 4,0	088,870	254,427,793

TABLE B-11

### Minimum OMP&R Costs of Each Aqueduct Reach to Be Reimbursed through Minimum OMP&R Component of Transportation Charge (Dollars)

California Aqueduct (continued)           Santa Ana Division (continued)         West Branch           Calendar Year         Reach 28G         Reach 28H         Reach 28J         Subtotal         Reach 29A         Reach 29F         Reach 29G         Reach 29G           1961         0         <	(64) 0 0 0 0
Calendar Year         Reach 28G         Reach 28H         Reach 28J         Subtotal (59)         Reach 29A         Reach 29F         Reach 29G         Reach 29G           1961         0<	(64)  0 0 0 0 0 0 0 0 0 0 0 88,198 119,743 (4,525)
Year         (56)         (57)         (58)         (59)         (60)         (61)         (62)         (63)           1961         0         0         0         0         0         0         0         0           1962         0         0         0         0         0         0         0         0           1963         0         0         0         0         0         0         0         0           1964         0         0         0         0         0         0         0         0           1965         0         0         0         0         0         0         0         0           1966         0         0         0         0         0         0         0         0           1967         0         0         0         0         0         0         0         0           1979         0         0         0         0         0         0         0         0           1979         0         0         0         0         0         0         0         0           1979         10         0         0	(64)  0 0 0 0 0 0 0 0 0 0 0 88,198 119,743 (4,525)
1961         0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
1962         0	0 0 0 0 0 0 0 0 0 0 88,198 119,743 (4,525)
1963         0	0 0 0 0 0 0 0 0 0 88,198 119,743 (4,525)
1965         0	0 0 0 0 0 0 0 88,198 119,743 (4,525)
1967         0	0 0 0 0 0 88,198 119,743 (4,525)
1967         0	0 0 0 0 88,198 119,743 (4,525)
1969         0	0 0 88,198 119,743 (4,525)
1971         0         0         0         0         0         0         0         0         0         0         0         1972         109         30         0         743         719,255         159,249         199,145         234,196         1973         136,352         79         0         836,300         779,949         339,363         122,664         264,850         1974         155,262         34,693         854,637         1,868,372         883,312         158,366         112,458         350,160         1975         110,729         69,082         723,814         1,817,983         1,049,990         176,676         194,724         801,457           1976         138,575         100,400         635,853         2,029,323         1,220,429         215,588         202,591         624,614           1977         127,543         92,647         825,880         2,521,394         1,268,813         116,939         218,129         684,679           1978         166,919         68,363         835,082         2,297,500         1,174,708         342,479         267,308         415,641           1979         142,586         92,812         265,525         1,820,534         1,366,900         285,575         284	0 88,198 119,743 (4,525)
1972         109         30         0         743         719,255         159,249         199,145         234,196           1973         136,352         79         0         836,300         779,949         339,363         122,664         264,850           1974         155,262         34,693         854,637         1,868,372         883,312         158,366         112,458         350,160           1975         110,729         69,082         723,814         1,817,983         1,049,990         176,676         194,724         801,457           1976         138,575         100,400         635,853         2,029,323         1,220,429         215,588         202,591         624,614           1977         127,543         92,647         825,880         2,521,394         1,268,813         116,939         218,129         684,679           1978         166,919         68,363         835,082         2,297,500         1,174,708         342,479         267,308         415,641           1980         158,340         129,897         1,120,131         3,012,710         1,697,437         224,472         455,619         874,259           1981         160,053         111,722         332,124         2,210,46	88,198 119,743 (4,525)
1974         155,262         34,693         854,637         1,868,372         883,312         158,366         112,458         350,160           1975         110,729         69,082         723,814         1,817,983         1,049,990         176,676         194,724         801,457           1976         138,575         100,400         635,853         2,029,323         1,220,429         215,588         202,591         624,614           1977         127,543         92,647         825,880         2,521,394         1,268,813         116,939         218,129         684,679           1978         166,919         68,363         835,082         2,297,500         1,174,708         342,479         267,308         415,641           1979         142,586         92,812         265,525         1,820,534         1,366,900         285,575         284,188         972,534           1980         158,340         129,897         1,120,131         3,012,710         1,697,437         224,472         455,619         874,259           1981         160,053         111,722         332,124         2,210,461         1,781,858         123,216         615,045         2,309,557           1982         205,350         135,463	(4,525)
1975         110,729         69,082         723,814         1,817,983         1,049,990         176,676         194,724         801,457           1976         138,575         100,400         635,853         2,029,323         1,220,429         215,588         202,591         624,614           1977         127,543         92,647         825,880         2,521,394         1,268,813         116,939         218,129         684,679           1978         166,919         68,363         835,082         2,297,500         1,174,708         342,479         267,308         415,641           1979         142,586         92,812         265,525         1,820,534         1,366,900         285,575         284,188         972,584           1980         158,340         129,897         1,120,131         3,012,710         1,697,437         224,472         455,619         874,259           1981         160,053         111,722         332,124         2,210,461         1,781,858         123,216         615,045         2,309,557           1982         205,350         135,463         1,530,845         3,720,773         1,919,813         190,480         702,262         2,223,146	
1977         127,543         92,647         825,880         2,521,394         1,268,813         116,939         218,129         684,679           1978         166,919         68,363         835,082         2,297,500         1,174,708         342,479         267,308         415,641           1979         142,586         92,812         265,525         1,820,534         1,366,900         285,575         284,188         972,584           1980         158,340         129,897         1,120,131         3,012,710         1,697,437         224,472         455,619         874,259           1981         160,053         111,722         332,124         2,210,461         1,781,858         123,216         615,045         2,309,557           1982         205,350         135,463         1,530,845         3,720,773         1,919,813         190,480         702,262         2,223,146	-,
1978         166,919         68,363         835,082         2,297,500         1,174,708         342,479         267,308         415,641           1979         142,586         92,812         265,525         1,820,534         1,366,900         285,575         284,188         972,584           1980         158,340         129,897         1,120,131         3,012,710         1,697,437         224,472         455,619         874,259           1981         160,053         111,722         332,124         2,210,461         1,781,858         123,216         615,045         2,309,557           1982         205,350         135,463         1,530,845         3,720,773         1,919,813         190,480         702,262         2,223,146	98,268
1979         142,586         92,812         265,525         1,820,534         1,366,900         285,575         284,188         972,584           1980         158,340         129,897         1,120,131         3,012,710         1,697,437         224,472         455,619         874,259           1981         160,053         111,722         332,124         2,210,461         1,781,858         123,216         615,045         2,309,557           1982         205,350         135,463         1,530,845         3,720,773         1,919,813         190,480         702,262         2,223,146	184 17,764
1981 160,053 111,722 332,124 2,210,461 1,781,858 123,216 615,045 2,309,557 1982 205,350 135,463 1,530,845 3,720,773 1,919,813 190,480 702,262 2,223,146	29,850
1982 205,350 135,463 1,530,845 3,720,773 1,919,813 190,480 702,262 2,223,146	288,303
	8,794 414,230
1983         244,720         124,651         413,556         2,467,919         2,740,354         149,816         890,684         747,492           1984         240,496         190,924         770,804         3,538,458         3,462,240         80,998         2,357,057         543,274	579,839 719,165
1904 240,496 190,924 770,004 3,336,436 3,462,240 60,996 2,337,037 343,274 1985 451,600 182,242 871,350 4,231,828 3,872,902 295,854 3,051,915 976,380	616,843
1986 439,048 256,526 983,200 4,486,306 3,792,215 457,661 2,900,602 1,481,302	1,033,007
1987         278,094         218,717         1,118,108         4,488,636         3,380,008         212,724         2,911,461         948,116           1988         271,877         200,798         1,178,954         4,779,072         3,470,452         254,903         3,031,654         884,875	418,565 457,471
1989 230,942 281,901 1,131,348 4,879,533 4,031,803 405,878 2,759,583 1,401,388	865,467
	752,183
1991         843,049         632,653         1,629,795         6,982,080         3,821,414         303,876         3,521,130         638,827           1992         281,766         5,636,520         1,102,279         11,116,399         4,273,138         328,660         3,886,181         1,022,444	739,746 873,505
1993 382,043 570,420 1,005,237 7,765,997 3,963,921 343,970 4,518,612 1,667,697 1994 617,188 415,617 1,020,433 8,758,975 3,620,875 297,161 3,342,536 1,875,209	833,123 803,276
1995 1,284,457 704,900 861,541 8,741,339 4,147,084 866,987 4,534,041 1,582,385	927,439
1996 1,041,613 856,011 1,161,493 8,627,455 4,352,702 999,459 3,761,839 3,817,645	880,261
1997         579,146         1,090,381         2,117,012         9,352,423         5,718,896         783,465         3,203,472         3,788,794           1998         683,245         384,781         1,789,037         7,824,702         5,829,508         560,249         2,605,978         3,154,415	655,561 640,729
1999 704,891 396,152 1,244,075 7,370,049 5,988,736 533,862 2,576,856 3,471,758 2000 529,543 386,108 1,944,342 7,749,918 5,561,918 534,379 2,370,577 3,197,060	652,868 651,929
	,
2001         529,543         386,108         1,606,573         7,410,545         5,560,442         527,006         2,368,359         3,173,229           2002         529,543         386,108         2,077,792         7,886,751         5,565,052         550,343         2,375,372         3,255,305	651,929 651,929
2003         529,543         386,108         1,989,660         7,798,340         5,564,796         549,027         2,374,985         3,251,026           2004         529,543         386,108         1,913,424         7,723,260         5,565,869         554,491         2,376,604         3,269,542	651,929 651,929
2005 529,543 386,108 1,689,201 7,496,476 5,563,491 542,358 2,373,012 3,228,296	651,929
2006 529,543 386,108 1,995,224 7,802,864 5,563,830 544,096 2,373,526 3,234,163	651,929
2007         529,543         386,108         1,742,773         7,550,017         5,563,461         542,195         2,372,966         3,227,440           2008         529,543         386,108         1,905,098         7,712,795         5,563,884         544,360         2,373,607         3,235,200	651,929 651,929
2009 529,543 386,108 1,715,761 7,523,493 5,563,917 544,531 2,373,654 3,235,636 2010 529,543 386,108 1,807,957 7,615,670 5,563,899 544,433 2,373,627 3,235,213	651,929 651,929
	651,929
2012 529,536 386,104 1,923,306 7,731,044 5,563,926 544,885 2,373,735 3,236,844	651,925
2013         529,536         386,104         1,950,172         7,759,538         5,565,438         552,618         2,376,016         3,263,179           2014         529,536         386,104         2,012,992         7,824,196         5,567,026         559,175         2,378,493         3,285,677	651,925 651,925
2015 529,536 386,104 1,535,655 7,347,262 5,567,522 563,255 2,379,168 3,299,711	651,925
2016 529,536 386,104 2,160,929 7,972,436 5,567,426 562,763 2,379,025 3,298,044	651,925
2017         529,536         386,104         1,802,205         7,613,794         5,567,504         563,154         2,379,141         3,299,339           2018         529,536         386,104         2,073,614         7,885,150         5,567,454         562,900         2,379,067         3,298,392	651,925 651,925
2019         529,536         386,104         1,950,096         7,761,624         5,567,448         562,875         2,379,058         3,298,380           2020         529,536         386,104         1,732,473         7,543,371         5,566,863         559,878         2,378,171         3,288,093	651,925 651,925
2021 529,536 386,104 2,133,047 7,943,894 5,566,814 559,634 2,378,100 3,287,298	651,925
2022 529,536 386,104 1,655,214 7,466,026 5,566,781 559,473 2,378,050 3,286,713	651,925
2023         529,536         386,104         2,089,105         7,900,127         5,566,976         560,465         2,378,344         3,290,096           2024         529,536         386,104         1,771,990         7,582,788         5,566,768         559,401         2,378,030         3,286,497	651,925 651,925
2025 529,536 386,104 2,077,529 7,888,496 5,566,926 560,208 2,378,270 3,289,316	651,925
2026 529,536 386,104 1,836,508 7,647,364 5,566,821 559,678 2,378,111 3,287,446 2027 529,536 386,104 1,891,788 7,702,354 5,566,554 558,306 2,377,705 3,282,652	651,925 651,925
2028 529,536 386,104 1,681,437 7,491,985 5,566,536 558,220 2,377,681 3,282,416	651,925
2029         529,536         386,104         2,250,491         8,061,214         5,566,699         559,055         2,377,927         3,285,326           2030         529,536         386,104         2,081,370         7,891,549         5,566,194         556,458         2,377,157         3,276,221	651,925 651,925
2031 529,536 386,104 1,511,664 7,321,982 5,566,326 557,133 2,377,360 3,278,878	651,925
2032 529,536 386,104 1,995,457 7,805,909 5,566,448 557,770 2,377,548 3,281,044	651,925
2033         529,536         386,104         1,936,430         7,746,716         5,566,293         556,973         2,377,310         3,278,145           2034         529,536         386,104         2,009,174         7,819,602         5,566,425         557,653         2,377,511         3,280,493	651,925 651,925
2035 529,536 386,104 2,185,161 7,995,485 5,566,331 557,154 2,377,360 3,278,375	651,925
Total 29,577,014 27,186,148 95,581,711 410,861,536 284,735,287 29,522,296 142,000,682 158,509,003	

## Minimum OMP&R Costs of Each Aqueduct Reach to Be Reimbursed through Minimum OMP&R Component of Transportation Charge

(Dollars) Sheet 8 of 8

					a Aqueduct (	continued)			Sheet 8 of 8
1	West Brar	nch (contd.)		Coastal I	Branch				Grand
Calendar	Reach 30	Subtotal	Reach 31A (a	Reach 33A	Reach 34	Reach 35	Subtotal	Total	Total
Year	(65)	(66)	(67)	(68)	(69)	(70)	(71)	(72)	(73)
1961 1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 42,918 168,358 184,729 378,874
1966 1967 1968 1969 1970	0 0 0 0	0 0 0 0	0 0 0 509,728 609,988	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 509,728 609,988	0 0 2,160,548 3,324,718 3,983,062	408,397 634,505 2,745,160 4,074,939 4,676,282
1971 1972 1973 1974 1975	0 420,789 621,431 723,949 841,991	0 1,820,832 2,248,000 2,223,720 3,140,708	699,052 697,576 641,626 669,279 806,429	0 0 0 0	0 0 0 0	0 0 0 0	699,052 697,576 641,626 669,279 806,429	5,614,013 12,353,356 14,590,688 16,598,762 19,569,999	6,185,714 12,998,869 15,194,233 17,372,561 20,517,423
1976 1977 1978 1979 1980	(650,944) 634,581 3,088,954 958,068 222,549	1,710,546 2,923,325 5,306,854 3,897,165 3,762,639	840,927 872,169 934,119 871,644 1,051,477	0 0 0 0	0 0 0 0	0 0 0 0	840,927 872,169 934,119 871,644 1,051,477	19,002,859 23,267,885 24,818,739 23,420,961 30,088,263	20,027,213 24,213,489 26,012,786 24,674,648 32,020,761
1981 1982 1983 1984 1985	1,094,117 978,814 3,124,027 727,530 1,775,929	5,932,587 6,428,745 8,232,212 7,890,264 10,589,823	1,037,184 1,020,254 1,151,761 1,431,755 1,859,521	0 0 0 0	0 0 0 0	0 0 0 0	1,037,184 1,020,254 1,151,761 1,431,755 1,859,521	33,829,984 39,541,812 53,983,552 63,919,470 70,821,254	35,459,286 41,658,583 56,240,707 67,073,426 74,395,528
1986 1987 1988 1989 1990	1,339,162 1,405,139 1,450,302 1,500,557 845,391	11,003,949 9,276,013 9,549,657 10,964,676 12,403,725	1,719,396 1,697,686 1,975,914 1,778,776 2,265,585	0 0 0 0	0 0 0 0	0 0 0 0	1,719,396 1,697,686 1,975,914 1,778,776 2,265,585	73,862,726 70,485,157 72,770,203 74,039,475 85,380,828	77,132,683 74,240,984 76,494,958 78,806,384 90,586,072
1991 1992 1993 1994 1995	1,190,235 2,206,313 1,148,299 1,715,395 71,873	10,215,228 12,590,241 12,475,622 11,654,452 12,129,809	2,178,746 2,453,762 2,826,821 3,884,811 3,461,567	0 0 0 0	0 0 0 0	0 0 0 0	2,178,746 2,453,762 2,826,821 3,884,811 3,461,567	86,066,737 93,855,395 100,180,327 93,816,495 101,109,016	90,146,133 98,915,486 107,470,384 101,387,253 107,861,525
1996 1997 1998 1999 2000	1,729,424 1,901,728 1,878,600 (563,881) 4,056,584	15,541,330 16,051,916 14,669,479 12,660,199 16,372,447	4,695,328 4,725,955 4,325,642 4,458,953 4,352,325	0 1,045,292 685,777 663,653 660,806	0 59,063 16,823 3,568 1,616	0 39,922 14,877 4,760 4,294	4,695,328 5,870,232 5,043,119 5,130,934 5,019,041	105,749,494 125,494,343 118,491,062 114,354,032 116,859,032	112,541,523 133,489,833 126,459,810 122,581,442 124,850,292
2001 2002 2003 2004 2005	2,739,688 1,428,902 1,845,391 1,276,391 1,922,370	15,020,653 13,826,903 14,237,154 13,694,826 14,281,456	4,350,832 4,355,616 4,355,347 4,356,460 4,353,996	660,178 662,143 662,033 662,489 661,480	1,507 1,856 1,836 1,917 1,737	4,003 4,931 4,881 5,097 4,619	5,016,520 5,024,546 5,024,097 5,025,963 5,021,832	113,085,379 113,673,520 114,745,566 111,657,622 113,958,896	121,073,961 121,670,649 122,742,187 119,656,348 121,952,964
2006 2007 2008 2009 2010	1,846,942 1,219,464 2,036,913 1,822,133 1,625,126	14,214,486 13,577,455 14,405,893 14,191,800 13,994,227	4,354,347 4,353,967 4,354,403 4,354,437 4,354,419	661,623 661,467 661,645 661,660 661,654	1,763 1,734 1,767 1,770 1,768	4,687 4,613 4,698 4,702 4,701	5,022,420 5,021,781 5,022,513 5,022,569 5,022,542	114,773,898 111,813,407 112,760,653 113,972,835 112,725,435	122,768,631 119,807,420 120,755,491 121,967,739 120,720,305
2011 2012 2013 2014 2015	1,829,787 1,750,519 1,651,942 1,620,234 1,886,069	14,199,644 14,121,834 14,061,118 14,062,530 14,347,650	4,354,442 4,354,452 4,356,020 4,357,734 4,358,175	661,663 661,688 662,327 663,045 663,212	1,770 1,774 1,889 2,015 2,047	4,704 4,718 5,022 5,356 5,440	5,022,579 5,022,632 5,025,258 5,028,150 5,028,874	113,295,832 113,472,540 114,922,582 112,066,570 115,671,843	121,290,748 121,467,474 122,920,480 120,067,755 123,673,820
2016 2017 2018 2019 2020	1,859,139 1,820,499 1,667,781 1,804,608 1,729,034	14,318,322 14,281,562 14,127,519 14,264,294 14,173,964	4,358,078 4,358,157 4,358,107 4,358,099 4,357,493	663,170 663,203 663,184 663,180 662,933	2,039 2,046 2,041 2,041 1,997	5,423 5,436 5,426 5,425 5,307	5,028,710 5,028,842 5,028,758 5,028,745 5,027,730	112,865,699 114,101,066 112,747,195 114,482,137 114,067,947	120,867,491 122,103,009 120,749,043 122,483,973 122,068,635
2021 2022 2023 2024 2025	1,778,395 1,754,428 1,694,069 1,784,162 1,896,604	14,222,166 14,197,370 14,141,875 14,226,783 14,343,249	4,357,444 4,357,412 4,357,612 4,357,398 4,357,560	662,912 662,897 662,979 662,893 662,961	1,994 1,991 2,006 1,990 2,001	5,297 5,291 5,329 5,289 5,320	5,027,647 5,027,591 5,027,926 5,027,570 5,027,842	112,952,066 113,489,473 114,511,320 113,066,042 113,841,508	120,952,664 121,490,007 122,512,232 121,066,549 121,842,323
2026 2027 2028 2029 2030	1,812,238 1,642,108 1,731,154 1,808,758 1,167,890	14,256,219 14,079,250 14,167,932 14,249,690 13,595,845	4,357,452 4,357,174 4,357,157 4,357,325 4,356,802	662,916 662,801 662,797 662,864 662,651	1,994 1,974 1,972 1,984 1,946	5,299 5,246 5,242 5,276 5,173	5,027,661 5,027,195 5,027,168 5,027,449 5,026,572	113,966,942 113,398,361 113,964,610 114,779,600 112,321,767	121,967,554 121,398,445 121,964,662 122,779,968 120,321,149
2031 2032 2033 2034 2035	2,121,549 1,973,724 1,761,417 1,794,317 899,662	14,553,171 14,408,459 14,192,063 14,228,324 13,330,807	4,356,936 4,357,065 4,356,904 4,357,041 4,356,942	662,705 662,755 662,691 662,746 662,707	1,956 1,965 1,954 1,964 1,957	5,199 5,223 5,194 5,219 5,200	5,026,796 5,027,008 5,026,743 5,026,970 5,026,806	114,173,118 114,183,679 112,988,795 114,737,564 113,727,016	122,172,752 122,183,557 120,988,371 122,737,394 121,726,660
Total	97,440,313	749,262,656	214,978,561	26,241,780	148,032	241,839	241,610,212	5,870,366,730	6,267,236,561

a) Includes certain costs to be assigned directly to Kern County Water Agency. Refer to Appendix B text discussion of Table B-16A under "Project Water Charges."

#### Variable OMP&R Costs to Be Reimbursed through Variable OMP&R Component of Transportation Charge (a

(Dollars) Sheet 1 of 3

_					(Dollars)	1			Sheet 1 of 3
		North Bay A	Aqueduct		South Bay Aqueduct		Californi	a Aqueduct	
	Reach 1	Reach 3A	Reach 3B		Reach 1	Reach 1	Reach 4	Reach 14A	Reach 15A
Calendar Year	Barker Slough Pumping Plant (1)	Cordelia Pumping Plant (Solano)	Cordelia Pumping Plant (Napa) (b	Total (4)	South Bay & Del Valle Pumping Plants (c (5)	Banks Pumping Plant (6)		Buena Vista Pumping Plant (8)	Teerink Pumping Plant (9)
1962 1963 1964 1965	0 0 0	0 0 0 0	0 0 0	0 0 0 0	36,970 57,711 74,134 142,609	0 0 0	0 0 0 0	0 0 0 0	0 0 0
1966 1967 1968 1969 1970	0 0 0 0 0	0 0 0 0	0 0 6,989 8,551 13,598	0 0 6,989 8,551 13,598	192,605 223,117 336,671 257,579 396,358	0 13,881 452,630 293,741 346,215	0 0 202,947 135,425 211,198	0 0 0 0	0 0 0 0
1971 1972 1973 1974 1975	0 0 0 0 0	0 0 0 0	10,609 14,434 14,449 17,473 14,779	10,609 14,434 14,449 17,473 14,779	381,662 598,702 493,490 565,575 349,758	574,015 927,369 685,014 769,839 1,330,133	225,188 498,482 379,305 438,997 514,241	138,001 234,626 303,105 344,632 542,726	17,664 89,516 275,021 350,558 585,744
1976 1977 1978 1979 1980	0 0 0 0 0	0 0 0 0	20,856 22,635 21,692 16,237 19,945	20,856 22,635 21,692 16,237 19,945	571,361 512,996 586,355 605,136 523,369	1,456,742 801,033 2,215,828 3,431,968 1,882,630	562,537 211,120 574,813 973,702 1,010,938	609,257 166,598 658,309 760,080 853,317	600,780 173,208 578,337 724,534 826,802
1981 1982 1983 1984 1985	0 0 0 0 0	0 0 0 0	23,841 12,159 2,335 4,866 10,186	23,841 12,159 2,335 4,866 10,186	567,692 531,147 124,260 274,071 451,019	3,920,954 3,060,402 866,082 1,726,890 3,203,309	1,897,018 1,360,551 372,224 889,800 1,615,350	1,289,727 1,196,255 362,477 680,440 1,397,491	1,269,451 1,208,785 337,756 603,604 1,397,101
1986	0	0	15,472	15,472	826,289	6,536,377	2,621,017	2,410,367	2,437,487
1987	0	0	27,222	27,222	895,814	6,172,584	2,522,219	2,237,997	2,220,340
1988	17,913	20,036	24,103	62,052	913,717	6,309,598	2,620,309	2,570,841	2,568,722
1989	26,413	45,485	6,589	78,487	1,083,079	9,551,090	3,989,995	3,981,891	3,992,439
1990	58,687	68,476	43,084	170,247	1,860,728	10,687,807	4,509,560	5,801,098	6,038,538
1991	11,125	10,117	5,875	27,117	378,980	1,926,358	493,809	904,473	1,031,967
1992	13,421	13,168	9,477	36,066	314,541	3,131,301	1,139,820	1,202,024	1,252,667
1993	(11,725)	(8,700)	(5,363)	(25,788)	(158,666)	554,095	354,653	(61,782)	(37,886)
1994	46,526	39,386	28,924	114,836	794,438	5,680,413	2,314,257	2,498,684	2,506,825
1995	19,637	20,232	11,570	51,439	245,465	3,758,374	1,420,363	775,720	692,557
1996	56,659	45,013	22,286	123,958	588,171	8,179,925	3,951,313	2,501,332	2,300,483
1997	116,828	76,357	75,459	268,644	1,503,616	12,542,934	4,917,275	4,824,444	5,294,412
1998	143,404	87,508	84,337	315,249	1,999,562	13,909,987	5,459,471	5,580,787	6,182,248
1999	123,912	81,636	79,772	285,320	2,046,967	13,898,586	5,314,943	5,813,102	6,502,888
2000	142,194	91,324	94,011	327,529	2,307,172	16,831,035	6,558,614	7,581,669	8,590,453
2001	134,460	84,370	90,306	309,136	2,142,740	15,455,732	5,976,861	6,839,703	7,731,542
2002	173,466	117,207	124,507	415,180	2,757,333	22,447,099	8,927,249	10,949,161	12,803,655
2003	175,651	120,160	128,571	424,382	2,727,963	22,286,224	8,857,286	10,877,199	12,721,781
2004	187,743	129,633	139,870	457,246	2,849,763	22,996,199	9,167,657	11,211,645	13,105,347
2005	172,338	115,916	131,627	419,881	2,579,938	21,167,602	8,369,783	10,275,125	12,016,918
2006	176,697	119,108	137,396	433,201	2,618,402	21,476,523	8,505,011	10,446,423	12,218,207
2007	176,088	117,209	139,815	433,112	2,576,652	21,034,901	8,313,546	10,180,886	11,902,611
2008	182,059	119,382	148,114	449,555	2,624,434	21,493,525	8,512,371	10,448,663	12,219,743
2009	184,503	119,551	153,221	457,275	2,628,131	21,584,006	8,550,162	10,509,749	12,293,519
2010	186,679	119,459	158,227	464,365	2,626,121	21,526,520	8,525,499	10,469,349	12,244,566
2011	189,512	119,580	164,364	473,456	2,628,767	21,590,168	8,552,665	10,513,007	12,297,306
2012	192,305	119,916	170,034	482,255	2,636,175	21,662,656	8,583,863	10,555,275	12,347,390
2013	207,782	127,718	187,620	523,120	2,807,689	22,930,190	9,136,430	11,231,346	13,137,756
2014	225,319	136,527	207,832	569,678	3,001,328	23,985,000	9,594,155	11,699,250	13,669,672
2015	231,571	138,460	218,072	588,103	3,043,813	24,661,570	9,890,088	12,149,960	14,211,100
2016	233,440	138,882	224,210	596,532	3,033,215	24,530,426	9,833,807	12,067,927	14,113,023
2017	236,822	139,275	231,837	607,934	3,041,812	24,681,006	9,897,670	12,166,742	14,231,862
2018	239,185	139,024	238,812	617,021	3,036,309	24,549,864	9,842,056	12,076,854	14,123,281
2019	241,838	138,988	246,367	627,193	3,035,516	24,651,121	9,884,329	12,154,501	14,218,082
2020	239,273	135,944	248,572	623,789	2,969,054	24,123,219	9,655,620	11,865,780	13,879,253
2021	239,177	135,700	249,343	624,220	2,963,749	24,031,321	9,616,210	11,805,137	13,806,386
2022	238,882	135,533	249,036	623,451	2,960,095	24,052,003	9,623,388	11,825,088	13,831,396
2023	240,655	136,540	250,885	628,080	2,982,071	24,238,435	9,705,667	11,931,742	13,957,106
2024	238,757	135,463	248,906	623,126	2,958,558	24,012,595	9,607,242	11,798,578	13,799,367
2025	240,195	136,279	250,406	626,880	2,976,375	24,191,836	9,685,344	11,905,633	13,926,452
2026	239,247	135,741	249,417	624,405	2,964,624	24,109,255	9,649,538	11,862,456	13,876,163
2027	236,792	134,348	246,857	617,997	2,934,195	23,858,231	9,539,217	11,721,486	13,710,283
2028	236,634	134,259	246,693	617,586	2,932,245	23,843,305	9,533,721	11,714,750	13,702,506
2029	238,119	135,101	248,240	621,460	2,950,641	24,014,446	9,608,595	11,814,987	13,821,000
2030	233,496	132,478	243,421	609,395	2,893,356	23,412,951	9,347,604	11,453,705	13,391,805
2031	234,679	133,150	244,655	612,484	2,908,024	23,644,781	9,447,451	11,605,015	13,573,469
2032	235,818	133,796	245,843	615,457	2,922,139	23,801,394	9,515,653	11,700,510	13,687,127
2033	234,409	132,996	244,373	611,778	2,904,669	23,613,566	9,433,913	11,586,533	13,551,591
2034	235,607	133,676	245,622	614,905	2,919,515	23,782,440	9,506,769	11,690,258	13,675,113
2035	234,731	133,179	244,709	612,619	2,908,667	23,557,946	9,410,496	11,538,557	13,492,338
Total	8,308,923	5,104,586	7,976,232	21,389,741	123,898,298	954,627,195	382,068,370	452,802,668	521,901,717

Note: B-12 excludes Extra Peaking Charges for additional power shown in Table 7.
a) Includes extra peaking costs assigned directly to contractors. Refer to Appendix B text discussion of Table B-17 under "Project Water Charges."
b) Costs for the period 1968 through 1987 are for an interim facility.
c) The relatively minor costs of Del Valle Pumping Plant have been combined with those of South Bay Pumping Plant to simplify the allocation procedures.

## Variable OMP&R Costs to Be Reimbursed through Variable OMP&R Component of Transportation Charge (a

(Dollars) Sheet 2 of 3

-				,	ollars)				Sheet 2
4		T =	T =		ia Aqueduct (co				T =
	Reach 16A Chrisman Pumping	Reach 17E  Edmonston  Pumping	Reach 18A  Alamo	Reach 22B Pearblossom Pumping	Reach 23 Mojave Siphon	Reach 24 Silverwood	Reach 26A Devil Canyon	Reach 28J Lake	Reach 29 Oso Pumping
Calendar Years	Plant (10)	Plant (11)	Powerplant (12)	Plant (13)	Powerplant (14)	Lake (d (15)	Powerplant (16)	Perris (d (17)	Plant (18)
	• , ,	, ,	. , ,	, ,	. ,	, ,	. , ,	, ,	. ,
1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	
1966 1967 1968 1969 1970	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	
1971 1972 1973 1974 1975	0 165,589 434,834 589,117 1,130,256	0 494,616 1,524,488 2,058,680 3,940,915	0 0 0 0	0 23,387 219,421 315,705 577,509	0 0 0 0	0 4,216 47,861 98,179 25,950	0 (3,024) (436,769) (496,517) (1,033,054)	0 0 0 52,549 65,938	93,2° 158,0° 189,4° 349,0°
1976 1977 1978 1979 1980	1,222,413 351,987 1,034,893 1,438,690 1,634,049	4,235,934 1,160,085 3,636,671 4,965,847 5,416,333	0 0 0 0	869,201 296,678 1,551,015 1,712,620 1,733,275	0 0 0 0	122,336 261,704 0 122,803 154,695	(1,459,978) (1,115,096) (3,038,194) (3,159,826) (3,318,152)	104,257 50,523 0 355,442	245,3 18,0 69,0 118,9 36,7
1981 1982 1983 1984 1985	2,726,625 2,416,093 610,175 1,131,600 2,781,959	8,975,564 8,325,450 1,812,417 3,457,125 9,261,696	0 0 0 0	2,152,072 1,489,997 346,500 627,129 1,195,775	0 0 0 0	290,518 0 381,004 0	(3,678,813) (2,734,735) (5,478,332) (7,326,090) (10,477,628)	372,857 0 0 (10,024) (56,410)	443,2 539,2 135,1 237,0 874,0
1986 1987 1988 1989 1990	5,011,171 4,449,668 5,144,932 8,409,982 13,673,377	16,995,600 14,663,055 16,886,375 28,231,716 48,524,509	(1,013,756) (1,024,962) (742,774) (766,953) (834,989)	2,364,991 1,828,573 2,381,205 4,128,448 6,509,146	0 0 0 0	0 137,938 38,438 667,880 71,150	(11,484,996) (10,805,393) (14,495,967) (18,532,961) (20,911,839)	0 51,049 0 90,677 147,351	1,271,7 1,323,4 1,427,5 2,021,0 2,876,9
1991 1992 1993 1994 1995	2,427,686 2,507,517 (382,983) 5,254,818 1,347,705	8,646,393 8,380,661 (1,833,735) 18,225,895 4,415,170	(269,665) (929,667) (56,410) (58,666) (1,324,810)	996,386 1,166,220 (249,116) 2,557,815 1,089,620	0 0 0 0	0 188,995 (40,103) 0 0	(4,884,015) (9,485,416) (7,502,549) (11,662,318) (9,742,248)	0 (68,171) 0 145,724 0	535,3 655,2 90,3 1,201,4 122,1
1996 1997 1998 1999 2000	4,911,681 11,108,272 13,019,261 13,742,779 18,224,792	17,217,913 38,944,874 45,723,363 48,393,722 64,317,342	(2,965,290) (4,243,328) (3,665,267) (4,859,511) (5,328,822)	2,779,528 7,712,195 9,157,618 9,710,658 13,162,013	(992,438) (4,834,058) (4,824,444) (4,664,125) (5,563,927)	0 0 0 1,706,417 0	(12,174,720) (22,628,125) (25,541,402) (29,474,837) (34,067,037)	0 0 10,727 551,955 0	888,3 1,169,3 1,352,2 1,454,8 1,947,0
2001 2002 2003 2004 2005	16,391,060 27,327,099 27,154,068 27,966,854 25,649,224	57,822,801 96,723,390 96,114,836 98,979,105 90,787,104	(5,457,663) (5,371,746) (5,373,053) (5,339,406) (5,366,106)	12,288,005 13,950,240 13,815,862 14,167,153 13,029,965	(5,388,507) (5,632,634) (5,651,775) (5,260,478) (5,649,813)	766,332 0 0 1,550,665 0	(34,740,990) (31,479,878) (31,497,650) (31,644,222) (31,400,646)	156,853 0 0 0 144,386	1,535,1 5,558,8 5,546,0 5,723,4 5,245,1
2006 2007 2008 2009 2010	26,079,618 25,402,026 26,082,041 26,241,135 26,135,570	92,312,002 89,905,384 92,318,725 92,885,857 92,509,293	(5,390,027) (5,369,242) (5,381,987) (5,403,635) (5,415,477)	13,278,899 12,982,277 13,242,786 13,398,094 13,326,734	(5,411,394) (5,149,663) (5,501,537) (5,610,764) (5,582,620)	0 931,495 1,000,050 0 504,814	(31,652,148) (31,932,790) (31,844,218) (31,724,605) (31,796,119)	0 89,882 0 129,307 33,974	5,323,2 5,156,6 5,335,5 5,343,0 5,325,5
2011 2012 2013 2014 2015	26,249,356 26,356,747 28,043,499 29,166,920 30,333,622	92,914,803 93,296,114 99,265,779 103,216,430 107,370,104	(5,440,188) (5,407,712) (5,418,209) (5,152,367) (5,393,536)	13,402,203 13,477,272 14,358,887 14,469,333 15,455,995	(5,714,307) (5,787,287) (5,808,664) (4,989,555) (5,701,847)	211,203 0 0 1,689,668 0	(31,773,602) (31,751,956) (31,742,761) (31,972,241) (31,520,404)	0 0 0 0 412,816	5,344,3 5,359,4 5,694,9 6,081,2 6,188,1
2016 2017 2018 2019 2020	30,122,677 30,378,835 30,144,466 30,350,086 29,625,871	106,620,192 107,532,077 106,696,936 107,431,265 104,866,012	(5,372,985) (5,391,575) (5,381,227) (5,417,536) (5,478,242)	15,283,085 15,514,493 15,327,131 15,520,473 15,127,562	(5,335,274) (5,578,144) (5,615,778) (5,729,725) (5,706,500)	1,313,070 0 1,142,113 0 0	(31,923,796) (31,756,502) (31,793,753) (31,774,985) (31,656,527)	0 137,125 0 0 190,474	6,166,6 6,184,0 6,157,6 6,171,2 6,031,1
2021 2022 2023 2024 2025	29,468,712 29,523,549 29,792,602 29,454,269 29,726,982	104,306,849 104,503,351 105,457,375 104,256,637 105,224,810	(5,385,684) (5,376,735) (5,418,317) (5,370,133) (5,406,078)	14,972,813 15,057,266 15,248,238 14,986,809 15,182,035	(5,673,305) (5,833,693) (5,726,866) (5,553,352) (5,701,515)	1,043,827 0 0 559,363 201,583	(31,773,643) (31,540,952) (31,779,466) (31,729,120) (31,786,338)	0 271,748 0 150,876	6,025,3 6,016,7 6,052,3 6,014,8 6,051,0
2026 2027 2028 2029 2030	29,619,632 29,264,899 29,248,309 29,502,376 28,580,985	104,845,269 103,587,936 103,529,347 104,430,887 101,158,474	(5,404,871) (5,441,395) (5,435,505) (5,421,190) (5,388,497)	15,133,562 14,964,698 14,925,720 15,088,626 14,626,646	(5,745,330) (5,680,751) (5,502,691) (5,639,746) (5,308,107)	0 173,014 0 0 965,419	(31,709,837) (31,774,336) (31,709,175) (31,820,846) (31,942,212)	83,686 20,305 237,874 0 0	6,027,1 5,948,2 5,957,5 5,998,7 5,796,1
2031 2032 2033 2034 2035	28,972,433 29,216,602 28,925,510 29,190,934 28,796,540	102,551,682 103,419,199 102,385,122 103,328,471 101,923,470	(5,427,055) (5,417,312) (5,353,677) (5,417,848) (5,419,125)	14,754,045 14,939,734 14,722,467 14,929,045 14,873,570	(5,326,013) (5,386,776) (5,641,410) (5,695,622) (5,286,593)	0 0 736,898 0 0	(31,671,016) (31,932,146) (31,789,509) (31,791,316) (31,979,540)	407,380 0 0 0 0	5,912,0 5,940,7 5,905,2 5,935,4 5,788,1

d) These values represent a proportionate allocation of the total variable OMP&R costs of pumping and recovery plants (Table B-3) associated with net annual withdrawals from storage for Project Transportation Facilities. The allocation is determined annually by applying the following ratio, calculate d from the data shown in Table B-6: "Reservoir Storage Changes" (withdrawals, as a positive value) conveyed through each plant, divided by "Total" annual quantity conveyed through each plant, in acre-feet. The costs so determined are accumulated for all upstream plants for each year, for each respective reservoir.

## Variable OMP&R Costs to Be Reimbursed through Variable OMP&R Component of Transportation Charge (a (Dollars)

Sheet 3 of 3

			Califor	(Dollars) nia Aqueduct (col	ntinued)			Sheet 3 of 3
	Reach 29G	Reach 29H	Reach 29J	Reach 30	Reach 31A	Reach 33A		
Calendar Year	Warne Powerplant (19)	Pyramid Lake (d	Castaic Powerplant (21)	Castaic Lake (d (22)	Las Perillas & Badger Hill	Devil's Den, Bluestone & Polonio Pumping Plants (24)	Total (25)	Grand Total (26)
1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	36,970 57,711 74,134 142,609
1966 1967 1968 1969 1970	0 0 0 0	0 0 0 0	0 0 0 0	0 0 118,676 78,350 136,429	0 0 0 0	0 0 0 0	0 13,881 774,253 507,516 693,842	192,605 236,998 1,117,913 773,646 1,103,798
1971 1972 1973 1974 1975	0 3,578 0 0 0	0 (193,058) 7,344 42,364 0	0 72,639 (1,057,564) (1,540,853) (2,445,397)	166,296 237,638 0 5,561 10,225	0 120,913 118,582 94,848	0 0 0 0	1,121,164 2,648,786 2,661,036 3,336,872 5,689,034	1,513,435 3,261,922 3,168,975 3,919,920 6,053,571
1976 1977 1978 1979 1980	0 0 0 0	60,068 0 1,061,100 0 456,892	(1,940,099) (607,380) (1,542,479) (2,384,748) (984,154)	1,056,464 (1,211,050) 0 (12,206) 10,716	141,260 71,311 179,925 192,126 168,458	0 0 0 0	7,886,569 628,796 6,979,261 9,240,027 9,882,560	8,478,786 1,164,427 7,587,308 9,861,400 10,425,874
1981 1982 1983 1984 1985	0 (783,626) (843,635) (1,991,601) (5,930,176)	0 0 68,779 0 0	(3,201,635) (3,463,971) (4,369,425) (1,799,546) (16,350,536)	0 0 (1,588,849) (1,647,629) 0	169,178 168,390 17,887 113,728 147,587	0 0 0 0	16,626,798 12,782,837 (6,969,776) (3,307,568) (10,940,411)	17,218,331 13,326,143 (6,843,181) (3,028,631) (10,479,206)
1986 1987 1988 1989 1990	(5,579,301) (6,292,822) (7,003,483) (8,238,763) (11,095,239)	0 83,012 43,857 8,859 324,955	(11,072,448) (11,557,616) (12,295,001) (14,515,993) (20,471,397)	0 (39,678) (200,147) 131,399 24,409	298,277 245,082 215,561 283,590 416,504	0 0 0 0	10,796,506 6,214,516 5,470,050 23,434,332 46,291,923	11,638,267 7,137,552 6,445,819 24,595,898 48,322,898
1991 1992 1993 1994 1995	(3,604,790) (4,927,650) (3,700,155) (5,835,213) (861,231)	432,501 31,155 (668,686) 0 578,953	(6,579,194) (8,950,593) (8,306,381) (10,565,857) (3,608,979)	0 (1,069,900) (2,825,434) (103,880) 0	3,609 62,354 (51,822) 204,988 112,405	0 0 0 0	2,060,887 (5,713,467) (24,717,960) 12,364,890 (1,224,263)	2,466,984 (5,362,860) (24,902,414) 13,274,164 (927,359)
1996 1997 1998 1999 2000	(4,250,292) (4,304,628) (4,761,067) (6,296,472) (7,418,771)	89,110 0 0	(8,457,419) (8,187,119) (8,927,987) (10,137,658) (11,959,913)	49,785 0 2,389,004 0	292,791 559,851 588,576 576,579 645,235	0 1,239,002 1,302,565 1,448,209 1,622,024	14,183,194 44,254,239 54,566,669 56,071,051 75,141,772	14,895,323 46,026,499 56,881,480 58,403,338 77,776,473
2001 2002 2003 2004 2005	(6,199,930) (17,746,244) (17,853,276) (17,672,569) (17,834,569)	0 0 0 0	(10,225,986) (28,751,179) (28,977,983) (28,645,367) (28,973,627)	0 309,102 0 481,145 0	600,042 835,050 826,155 863,041 781,326	1,509,357 2,553,576 2,526,375 2,639,172 2,389,289	65,060,387 113,402,750 111,372,078 120,289,385 100,631,073	67,512,263 116,575,263 114,524,423 123,596,394 103,630,892
2006 2007 2008 2009 2010	(17,849,486) (17,613,743) (17,824,037) (17,853,445) (17,824,955)	0 0 0 0	(28,976,881) (28,543,686) (28,966,041) (28,973,345) (28,906,699)	0 491,599 0 0 83,331	792,975 780,331 794,802 795,922 795,312	2,424,912 2,386,247 2,430,499 2,433,921 2,432,057	103,577,899 100,948,738 104,360,926 104,598,924 104,386,651	106,629,502 103,958,502 107,434,915 107,684,330 107,477,137
2011 2012 2013 2014 2015	(17,840,557) (17,850,583) (17,834,068) (17,805,177) (17,851,159)	0 0 0 0	(28,971,483) (28,974,140) (28,913,540) (28,882,625) (28,973,618)	0 0 88,633 144,591 0	796,114 798,357 850,300 908,942 921,808	2,434,510 2,441,371 2,600,208 2,779,540 2,818,884	104,565,536 105,106,801 117,620,744 128,602,760 134,973,533	107,667,759 108,225,231 120,951,553 132,173,766 138,605,449
2016 2017 2018 2019 2020	(17,848,129) (17,857,415) (17,828,063) (17,857,200) (17,847,848)	0 0 0 0	(28,973,568) (28,975,289) (28,908,603) (28,975,299) (28,953,156)	0 0 111,798 0 36,027	918,600 921,203 919,535 919,296 899,168	2,809,070 2,817,032 2,811,936 2,811,200 2,749,648	134,324,776 134,903,182 134,376,239 134,356,892 129,407,511	137,954,523 138,552,928 138,029,569 138,019,601 133,000,354
2021 2022 2023 2024 2025	(17,855,551) (17,857,063) (17,835,364) (17,855,260) (17,845,056)	0 0 0 0	(28,975,332) (28,970,347) (28,929,568) (28,975,248) (28,972,414)	0 8,952 74,049 0 0	897,562 896,455 903,110 895,989 901,386	2,744,737 2,741,354 2,761,705 2,739,930 2,756,429	129,055,410 128,772,478 130,432,846 128,793,365 130,042,100	132,643,379 132,356,024 134,042,997 132,375,049 133,645,355
2026 2027 2028 2029 2030	(17,856,065) (17,822,506) (17,851,877) (17,853,056) (17,633,415)	0 0 0 0	(28,974,965) (28,898,003) (28,958,843) (28,974,631) (28,571,141)	0 120,475 26,583 0 600,208	897,827 888,611 888,021 893,591 876,243	2,745,547 2,717,366 2,715,562 2,732,596 2,679,545	129,159,033 126,897,780 126,865,157 128,196,342 124,046,398	132,748,062 130,449,972 130,414,988 131,768,443 127,549,149
2031 2032 2033 2034 2035	(17,827,666) (17,829,290) (17,864,364) (17,859,514) (17,559,424)	0 0 0 0	(28,967,136) (28,969,275) (28,976,560) (28,975,530) (28,393,661)	0 0 0 0 877,590	880,685 884,961 879,670 884,166 880,881	2,693,130 2,706,201 2,690,022 2,703,772 2,693,725	125,223,275 126,277,356 124,805,065 125,886,602 125,194,927	128,743,783 129,814,952 128,321,512 129,421,022 128,716,213
Total	(705,613,261)	2,427,205	(1,190,133,472)	(829,738)	36,225,210	97,232,225	4,575,964,735	4,721,252,774

#### Capital and Operating Costs of Project Conservation Facilities to Be Reimbursed through Delta Water Charge

(Dollars) Sheet 1 of 1

				(Dullais)			Sheet 1 of 1
	(Portions of		ial Project Conservation kes, Oroville-Thermal	on Facilities ito, and California Aque	duct Facilities)		
		Canital Coat		Application of Oroville	Power Revenues to:	Planning and Pre-operating	
Calendar	Capital Costs (a	Capital Cost Credits (b	Operating Costs (c	Capital Costs (d	Operating Costs (e	Costs (a (f	Total
Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1952	171,322	0	0	0	0	0	171,322
1953 1954	312,190 308,624	0	0	0	0	0	312,190
1955	194,645	0	0	0	0	0	308,624 194,645
1956 1957	1,357,077 6,210,709	0	0	0	0	0	1,357,077 6,210,709
1958 1959	9,510,916 11,390,586	0	0	0	0	0	9,510,916 11,390,586
1960	14,456,356	(4,850,000)	0	0	0	0	9,606,356
1961 1962	18,682,616 9,012,960	(431,527) (479,280)	0	0	0	0	18,251,089 8,533,680
1963 1964	72,965,728 62,490,522	(478,743) (751,330)	(14,000) (14,000)	0	0	0 107,780	72,472,985 61,832,972
1965 1966	70,913,845 125,205,400	(763,541)	(14,000)	0	0	551,850 1,081,023	70,688,154 125,523,774
1967 1968	94,296,914 39,888,442	(748,649) (812,145) (431,574)	(14,000) (13,446) 1,303,821	0 0 (951,000)	0	1,081,023 1,189,212 793,399	94,660,535 40,603,088
1969 1970	5,279,786 4,130,490	(259,015) (203,733)	2,890,772 4,818,634	(11,007,000) (14,650,000)	0 (1,500,000)	601,867 516,659	(2,493,590) (6,887,950)
1971	3,877,493	(193,631)	6,026,480	(14,650,000)	(1,500,000)	408,754	(6,030,904)
1972 1973	4,569,024 3,985,414	(196,361) (136,997)	5,393,011 6,135,774	(14,650,000) (14,650,000)	(1,500,000) (1,500,000)	287,374 203,384	(6,096,952) (5,962,425)
1974 1975	6,660,000 8,084,450	(137,503) (234,567)	6,944,723 7,697,390	(17,950,000) (14,650,000)	(1,500,000) (1,500,000)	201,907 146,188	(5,780,873) (456,539)
1976	5,870,531	(204,944)	7,067,037	(14,650,000)	(1,500,000)	205,234	(3,212,142)
1977 1978	21,285,849 7,713,252	(150,214) (64,566)	10,547,977 12,851,158	(14,650,000) (14,650,000)	(1,500,000) (1,500,000)	857,419 2,131,286	16,391,031 6,481,130
1979 1980	9,030,801 10,372,763	0	9,546,656 13,289,413	(14,650,000) (14,650,000)	(1,500,000) (1,500,000)	2,131,884 3,638,851	4,559,341 11,151,027
1981 1982	11,194,479 16,634,428	0	10,394,212 16,245,375	(14,650,000) (14,650,000)	(1,500,000) (1,500,000)	4,597,474 4,594,682	10,036,165 21,324,485
1983 1984	12,037,206 8,786,271	0	22,260,593 22,955,209	(34,705,000) (14,650,000)	(8,735,000) (10,348,000)	3,751,993 2,979,126	(5,390,208) 9,722,606
1985	12,027,235	ō	23,944,107	(14,650,000)	(8,079,000)	2,069,024	15,311,366
1986 1987	20,464,281 30,814,266	0	27,136,991 24,525,223	(14,650,000) (14,650,000)	(9,107,000) (9,451,000)	1,602,419 1,762,179	25,446,691 33,000,668
1988 1989	28,514,653 9,806,713	0	27,387,959 29,366,117	(14,650,000) (14,650,000)	(8,677,000) (8,104,000)	1,807,958 2,676,313	34,383,570 19,095,143
1990	27,811,589	0	38,251,491	(14,650,000)	(8,497,000)	1,434,371	44,350,451
1991 1992	35,926,399 27,634,485	0	77,361,434 35,110,883	(14,650,000) (14,650,000)	(9,487,000) (8,526,000)	1,725,246 1,717,617	90,876,079 41,286,985
1993 1994 1995	21,166,841 14,709,506 14,399,539	0 0 0	37,288,220 39,414,505 44,410,831	(14,650,000) (14,650,000) (14,650,000)	(8,768,000) (7,484,000) (7,041,000)	1,706,613 2,133,419 2,034,117	36,743,674 34,123,430 39,153,487
1995	13,956,832	0	53,851,391	(14,650,000)	(7,288,000)	2,414,273	48,284,496
1997 1998	9,893,833 14,841,748	0	53,336,588 54,888,917	(14,650,000) (14,650,000)	(7,009,000) (8,155,000)	7,386,000 5,582,000	48,957,421 52,507,665
1999 2000	23,664,526 25,043,203	0	51,853,343 49,276,636	(14,650,000) (14,650,000)	(7,733,000) (6,828,000)	11,861,000 14,079,000	64,995,869 66,920,839
2001	10,110,593	0	55,680,532	(14,650,000)	(6,828,000)	5,899,000	50,212,125
2002 2003	7,190,893 283,800	0 0	53,173,260 55,621,356	(14,650,000) (14,650,000)	(6,828,000) (6,828,000)	5,899,000 5,849,000	44,785,153 40,276,156
2004 2005	283,800 0	0	52,585,607 52,787,174	(14,650,000) (14,650,000)	(6,828,000) (6,828,000)	2,849,000 2,849,000	34,240,407 34,158,174
2006	0	0	56,224,010	(14,650,000)	(6,828,000)	2,849,000	37,595,010
2007 2008 2009	0	0 0 0	52,026,124 54,535,351	(14,650,000) (14,650,000)	(6,828,000) (6,828,000)	2,849,000 2,849,000	33,397,124 35,906,351 34,659,672
2010	0	0	53,288,672 52,621,858	(14,650,000) (14,650,000)	(6,828,000) (6,828,000)	2,849,000 2,849,000	33,992,858
2011 2012	0	0	49,117,134 48,961,683	(14,650,000) (14,650,000)	(6,828,000) (6,828,000)	0	27,639,134 27,483,683
2013 2014	0	0	50,570,547 48,257,038	(14,650,000) (14,650,000)	(6,828,000) (6,828,000)	0	29,092,547 26,779,038
2015	0	0	49,886,957	(14,650,000)	(6,828,000)	0	28,408,957
2016 2017	0	0	50,874,809 49,681,438	(14,650,000) (14,650,000)	(6,828,000) (6,828,000)	0	29,396,809 28,203,438
2018 2019	0	0	49,467,609 49,125,298	(14,650,000) (14,650,000)	(6,828,000) (6,828,000)	0	27,989,609 27,647,298
2020	0	0	50,216,876	(14,650,000)	(6,828,000)	0	28,738,876
2021 2022 2023	0	0	49,147,870 46,366,936 50,362,775	(14,650,000) (14,650,000) (14,650,000)	(6,828,000) (6,828,000) (6,828,000)	0	27,669,870 24,888,936 28,884,775
2024 2025	0	0	47,827,053 50,260,754	(14,650,000) (14,650,000) (14,650,000)	(6,828,000) (6,828,000) (6,828,000)	0	26,349,053 28,782,754
2026	0	0	49,830,407	(14,650,000)	(6,828,000)	0	28,352,407
2027 2028	0 0	0	46,722,237 49,484,919	(14,650,000) (14,650,000)	(6,828,000) (6,828,000)	0	25,244,237 28,006,919
2029 2030	0	0	51,712,080 46,886,246	(14,650,000) (14,650,000)	(6,828,000) (6,828,000)	0	30,234,080 25,408,246
2031	0	0	48,497,043	(14,650,000)	(6,828,000)	0	27,019,043
2032 2033 2034	0 0 0	0	51,129,374 48,420,074	(14,650,000) (14,650,000)	(6,828,000) (6,828,000)	0	29,651,374 26,942,074
2034	0	0	49,241,049 47,914,456	(14,650,000) (14,650,000)	(6,828,000) (6,828,000)	0	27,763,049 26,436,456
Total	1,025,425,824	(11,528,320)	2,602,210,031	(1,002,213,000)	(407,797,000)	130,558,895	2,336,656,430

a) Reimbursed through the capital cost component of the Delta Water Charge.
b) Negotiated settlements as to the magnitude of SWP planning costs from 1952 through 1978.
c) Reimbursed through the minimum OMP&R component of the Delta Water Charge. Credits for Gianelli power generation are reflected in these net costs.
d) Revenues credited through the capital cost component of the Delta Water Charge.
e) Revenues credited through the minimum OMP&R component of the Delta Water Charge.
f) Under amendments of Articles 22(e) and 22(g), planning and pre-operating costs of additional Project Conservation Facilities incurred through the previous year (1996) are reflected in the Delta Water Charge.

TABLE B-14 **Capital Costs of Transportation Facilities Allocated to Each Contractor** (Dollars)

Sheet 1 of 4

		North Day Area			(Dollars)				mtual Canatal A	Sheet 1 of 4
		North Bay Area		A la ma a ela		Bay Area			entral Coastal A	rea
Calendar	Napa County FC&WCD	Solano County Water Agency (a	Total	Alameda County FC&WCD, Zone 7	Alameda County Water District	Santa Clara Valley Water District	Total	San Luis Obispo County FC&WCD	Santa Barbara County FC&WCD	Total
Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1952 1953 1954 1955	0 0 0 0	0 0 0 0	0 0 0	83 324 819 976	114 479 1,305 1,570	410 1,808 5,150 6,297	607 2,611 7,274 8,843	121 336 422 211	224 619 779 388	345 955 1,201 599
1956	0	0	0	8,844	14,459	63,816	87,119	227	419	646
1957	15,199	11,435	26,634	21,563	35,239	649,598	706,400	290	535	825
1958	33,420	16,591	50,011	67,764	71,717	733,415	872,896	721	1,330	2,051
1959	20,697	6,591	27,288	154,254	143,731	493,049	791,034	25,853	53,921	79,774
1960	9,097	8,830	17,927	296,491	275,611	1,018,661	1,590,763	37,106	77,941	115,047
1961	6,950	7,445	14,395	853,505	802,675	1,914,710	3,570,890	15,637	31,208	46,845
1962	(195)	(925)	(1,120)	545,123	615,142	1,686,043	2,846,308	19,638	37,213	56,851
1963	1,320	1,110	2,430	657,426	1,281,271	3,243,840	5,182,537	73,104	136,563	209,667
1964	38,392	35,467	73,859	712,651	1,747,784	7,251,802	9,712,237	146,712	273,914	420,626
1965	198,833	62,221	261,054	360,780	606,027	3,414,461	4,381,268	261,453	486,421	747,874
1966	461,619	49,917	511,536	592,716	592,600	2,245,221	3,430,537	598,316	1,107,149	1,705,465
1967	1,569,498	40,379	1,609,877	796,996	803,953	2,401,869	4,002,818	947,505	1,751,623	2,699,128
1968	859,613	61,691	921,304	736,472	696,075	1,997,928	3,430,475	359,887	666,471	1,026,358
1969	74,389	59,317	133,706	269,699	293,275	764,954	1,327,928	84,314	157,237	241,551
1970	43,362	67,876	111,238	58,677	61,200	135,570	255,447	54,662	102,455	157,117
1971	26,764	34,051	60,815	12,086	18,227	84,089	114,402	37,649	71,703	109,352
1972	19,643	18,905	38,548	12,291	12,762	63,612	88,665	24,098	45,422	69,520
1973	56,510	30,874	87,384	10,494	12,137	39,380	62,011	27,479	51,710	79,189
1974	165,830	65,832	231,662	15,721	24,402	73,121	113,244	30,087	56,331	86,418
1975	91,825	89,233	181,058	16,730	15,807	41,395	73,932	25,396	50,761	76,157
1976	57,766	83,650	141,416	34,004	34,663	109,611	178,278	54,576	109,504	164,080
1977	64,167	80,147	144,314	46,229	45,116	133,375	224,720	130,014	243,030	373,044
1978	69,319	81,717	151,036	71,234	66,009	174,898	312,141	43,226	82,011	125,237
1979	191,272	282,908	474,180	45,469	42,943	110,667	199,079	51,322	97,291	148,613
1980	264,433	386,006	650,439	134,523	124,353	304,617	563,493	198,296	367,860	566,156
1981	227,606	383,086	610,692	(33,738)	(29,856)	(65,638)	(129,232)	(53,836)	(96,820)	(150,656)
1982	549,164	870,611	1,419,775	7,875	8,322	27,066	43,263	(19,623)	(35,153)	(54,776)
1983	1,254,900	1,433,061	2,687,961	138,413	131,516	339,246	609,175	49,590	92,896	142,486
1984	2,547,878	2,750,040	5,297,918	152,992	140,972	351,921	645,885	49,717	93,461	143,178
1985	7,143,121	6,443,613	13,586,734	19,777	19,245	53,491	92,513	32,565	63,760	96,325
1986	10,565,937	16,926,630	27,492,567	32,033	31,581	88,068	151,682	112,626	237,964	350,590
1987	7,979,817	12,599,440	20,579,257	50,153	48,675	138,960	237,788	459,970	1,009,140	1,469,110
1988	2,318,514	4,348,581	6,667,095	129,682	124,634	331,910	586,226	535,801	1,161,130	1,696,931
1989	1,225,808	1,601,450	2,827,258	111,529	105,748	267,214	484,491	436,749	939,822	1,376,571
1990	442,984	894,290	1,337,274	217,806	218,179	609,502	1,045,487	563,761	1,206,299	1,770,060
1991	99,932	94,295	194,227	413,691	383,615	946,890	1,744,196	797,320	1,684,943	2,482,263
1992	57,467	76,220	133,687	182,724	170,512	443,817	797,053	1,269,844	2,628,259	3,898,103
1993	122,522	192,057	314,579	129,692	125,651	343,403	598,746	4,240,448	8,447,029	12,687,477
1994	73,166	175,503	248,669	47,195	59,178	232,734	339,107	17,187,528	34,204,837	51,392,365
1995	45,094	82,679	127,773	104,952	104,026	276,201	485,179	41,719,026	84,781,775	126,500,801
1996	29,524	61,449	90,973	55,392	53,749	143,180	252,321	30,983,803	71,909,910	102,893,713
1997	74,282	53,718	128,000	26,017	26,609	74,899	127,525	9,784,431	22,250,135	32,034,566
1998	294,879	266,121	561,000	45,501	44,426	117,333	207,260	165,867	429,905	595,772
1999	326,368	773,703	1,100,071	28,545	26,098	62,190	116,833	44,985	108,295	153,280
2000	25	58	83	589	539	1,282	2,410	15,920	29,372	45,292
2001 2002 2003 2004 2005	25 25 0 0	58 58 0 0	83 83 0 0	589 589 0 0	539 539 0 0	1,282 1,282 0 0	2,410 2,410 0 0 0	15,920 15,920 0 0	29,372 29,372 0 0	45,292 45,292 0 0 0
2006 2007 2008 2009 2010	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0 0	0 0 0 0	0 0 0 0 0	0 0 0 0	0 0 0 0 0	0 0 0 0 0
Total	39,718,761	51,607,989	91,326,750	8,395,942	10,235,143	33,949,600	52,580,685	111,656,990	237,267,736	348,924,726

a) Costs from Table B-10 allocated to Solano County Water Agency are reduced herein by \$2,102,700 in 1986 and \$1,823,500 in 1987 under provisions of Amendment No. 10 to its water supply contract.

TABLE B-14

Capital Costs of Transportation Facilities Allocated to Each Contractor

(Dollars)

Sheet 2 of 4

San Joaquin Valley Area Empire Future Kern County Water Agency Tulare Lake Dudlev West Side Contractor Basin Water Ridge Water Irrigation San Joaquin Municipal and Municipal and County of Oak Flat Storage Calendai District (b **Agricultural** Water District Total District Vallev Industrial Industrial (c Kings District Year (12)(13)(14)(15)(16)(17)(18)(19)(20)(11)938 120 13 11 588 1952 389 19 59 9 247 19 784 1,076 53 67 344 416 27,725 32,787 56 70 2,158 2,719 1953 161 2,888 33 42 34,494 41,025 1954 1.350 200 3.374 1955 36 1,498 36 22 1,371 676 100 198 14.916 18.853 1956 727 33 107 2 703 272 24 529 34 26 1,417 29 848 1957 932 38 139 6.047 495 50.427 38 30 1.707 59.853 1958 1959 2,308 7,386 100 363 14,372 26,219 1,154 2,597 120,203 256,487 103 372 61 381 4,367 14,758 143,013 311,080 345 2,517 1960 12 941 629 3.666 34 053 4.155 356.322 644 498 25,697 438,605 21.849 1 063 3.957 51 406 6.500 545 210 1 087 43 378 675 049 1961 599 1962 49,322 2,410 7,866 94,932 13,836 1,030,981 2,466 1,879 98,144 1,301,836 1963 1964 208.765 10.686 32 175 364,014 600,151 55,715 88,904 3,990,352 6,725,183 10.933 5,990 11,943 425 346 5,103,976 8,525,719 1965 538 235 27 482 117,999 1 097 428 152.931 11,687,950 28.116 21.803 1.095.168 14,767,112 1,107,799 52,588 279,179 2,216,297 339,222 24,146,152 53,792 38,893 2,173,173 30,407,095 1966 1967 852,570 39,539 445,565 2,008,944 286,990 22,638,437 40,445 34,777 1,653,493 28,000,760 1968 198,747 9,740 4,794 166,267 1.098.483 70.088 11.158.920 9,962 12.238 396.089 13,120,534 7,280,270 1969 94 440 612.748 6 301 813 7.302 191 582 15,521 3,999 54,346 411,906 4.695.316 1970 2.720 21.686 4.072.881 2.784 109,473 1971 25,462 1,290 12,094 189,275 7,112 1,587,586 1,321 51,620 1,876,300 3,409 1,976 2,767 23,526 13,449 18,982 1972 11 590 589 8.355 82.341 702 949 601 343 833,703 436,810 460,418 1973 6,657 336 10,202 39,731 220 509,722 1974 9 4 7 8 469 11 044 45 168 478 326 549 130 13.328 5,245 370,229 27.049 457,700 1976 17,508 837 12,617 52,909 5,621 626,260 856 1,152 34,457 752,217 1977 9.671 437 47,790 36.340 3.753 795.376 445 494 18.496 912.802 1978 1979 23,499 25,051 (30,407) 1,295 6,178 5,665 54,091 53,752 559,277 544,925 1,208 1,324 1,402 1,862 47,449 51,295 669,276 691,778 6,609 1980 144,986 (4,617)31,163 321,116 38,126 3,129,009 7,682 7,144 297,227 3,971,836 1981 (5,425) 49,917 (15.463)201 (44.299)(1,220)(381.198)(297) 2,638 1.752 (11.324)(457, 273)2,584 6,600 83,241 13,142 637,052 1,252 102,292 898,718 1982 1983 1984 52,430 86,351 (35,296) 4,475 12,123 14,302 110,246 155,190 13,872 22,775 1,042,845 1,581,948 2,769 4,571 1,327 2,678 107,342 177,030 1,307,658 2,049,320 1985 25 437 1.311 5,649 47.003 6.765 470,226 1,342 1,176 52,016 610.925 1986 38.313 (41.067) 9.864 71.626 10.321 772.116 2.008 777 942,103 78.145 55,467 104,536 359,074 1987 28,770 1,476 7,004 1,491 1988 67 665 3 627 20,478 28,350 16 051 1,207,772 3.829.903 3,708 8,387 5,408 12,314 141,190 325,820 1,570,435 4,775,527 8,201 1989 159,618 43 860 49.773 1990 290.552 15.048 548,760 86.679 5.899.348 15.392 22.698 595.533 7.523.783 1991 349,646 18,114 60,479 580,866 91,823 6,292,455 18,527 23,498 716,768 8,152,176 28,120 30,324 21,526 241,965 174,746 157,351 3,360,295 1992 126,215 6,456 34,649 2.648.368 6,600 10.894 257,028 1993 86,311 85,192 4,386 4,381 23,894 22,976 1,994,508 1,749,170 175,170 174,004 2,498,526 4,482 4,482 4,705 2,196 1994 2 221 278 1995 90.584 (612) 30,095 181,564 26,458 2,055,530 4,754 2.963 184,801 2,576,137 1996 63,308 3,213 40,597 130,297 18,667 1,619,444 3,282 1,693 128,392 2,008,893 1997 32 818 1 689 13 069 56 072 8 771 674 728 1.727 2 888 67.043 858 805 3,729 2,675 144,425 103,386 3,648 2,616 19,445 13,821 6,627 1,709,508 13,142 1,201,319 1999 50.374 80.899 929,476 4.930 257 13 67 76,785 528 85,745 2000 7,607 449 25 2001 257 13 13 7 607 449 67 76 785 14 14 25 528 85 745 257 449 25 528 2002 7.607 67 76.785 85.745 2003 2004 2005 0 0 0 0 0 0 0 0 0 0 n 0 0 n n 0 n 2006 n n n 2007 2008 0 0 0 0 n 0 0 0 0 0 2010 0 Total 5,518,735 1,767,347 12,771,388 1,625,708 137,583,068 280,483 265,780 11,075,737 129.055 171.017.301

b) Costs from Table B-10 allocated to Empire West Side Irrigation District are reduced herein by \$31,588 in 1978; \$12,129 in 1980; \$15,173 in 1981; \$38,004 in 1983; \$43,033 in 1986; and \$5,261 in 1995 in accordance with letters of agreement with the district.

c) Costs related to maximum annual entitlement of 15,000 acre-feet under Amendment No. 18 of the water supply contract with Kern County Water Agency.

TABLE B-14 **Capital Costs of Transportation Facilities Allocated to Each Contractor** (Dollars)

Sheet 3 of 4

					Southern Cal	ifornia Area				Sheet 3 of 4
Calendar	Antelope Valley-East Kern Water Agency	Castaic Lake Water Agency (d	Coachella Valley Water District	Crestline- Lake Arrowhead Water Agency	Desert Water Agency	Littlerock Creek Irrigation District	Mojave Water Agency	Palmdale Water District	San Bernardino Valley Municipal Water District	San Gabriel Valley Municipal Water District
Year	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)
1952	3,132	1,040	844	250	1,389	72	2,325	414	6,038	1,538
1953	9,939	3,309	2,641	794	4,356	221	7,293	1,317	18,943	4,819
1954	12,631	4,171	3,431	1,024	5,655	283	9,439	1,675	24,454	6,246
1955	5,369	1,868	1,364	397	2,246	114	3,836	708	9,171	2,359
1956	9,695	3,565	2,178	607	3,590	189	6,300	1,258	13,046	3,414
1957	26,067	9,193	6,281	1,802	10,355	535	17,669	3,418	40,362	10,456
1958	48,784	17,484	11,467	3,262	18,913	981	32,556	6,357	72,203	18,758
1959	69,718	29,598	15,730	4,582	25,942	1,334	47,763	8,959	97,973	25,346
1960	84,017	38,611	21,871	6,746	36,076	1,532	64,208	10,691	146,302	37,230
1961	125,741	54,019	34,346	12,462	56,640	2,230	92,413	16,320	234,948	57,368
1962	197,409	85,135	43,423	13,784	71,617	3,325	125,101	24,792	252,113	63,961
1963	577,892	254,738	116,216	33,001	191,667	9,787	363,213	72,954	607,677	159,900
1964	1,089,261	500,471	208,298	55,151	343,528	18,348	686,692	137,091	1,020,855	274,670
1965	1,899,207	944,802	383,260	103,182	632,073	32,650	1,264,236	243,358	1,902,910	510,037
1966	3,941,578	2,145,429	807,691	214,603	1,332,045	68,950	2,724,186	514,555	3,921,358	1,056,238
1967	4,944,610	4,090,260	1,069,033	293,945	1,763,053	87,673	3,786,092	648,731	5,784,134	1,539,814
1968	5,871,590	3,984,375	1,337,126	364,714	2,205,185	106,317	4,061,455	776,544	7,921,893	2,106,003
1969	5,767,725	3,063,210	1,672,716	535,417	2,758,693	120,036	4,489,969	856,629	10,819,680	2,747,796
1970	4,984,394	3,263,784	2,028,120	689,612	3,344,860	105,242	5,167,374	729,165	13,712,943	3,428,800
1971	2,553,018	2,139,292	1,059,176	335,460	1,746,820	47,848	2,785,955	343,614	8,399,540	1,971,706
1972	964,221	280,379	327,937	91,112	540,833	18,935	911,047	133,021	2,681,158	693,191
1973	351,238	913,196	157,244	81,887	259,358	6,244	340,017	45,676	1,754,605	401,920
1974	447,325	279,501	255,976	73,305	422,157	8,066	693,892	58,581	1,603,082	421,925
1975	251,260	245,795	191,156	52,194	315,255	4,906	511,075	33,678	1,522,588	404,815
1976	235,639	254,678	135,070	36,810	222,759	4,207	380,801	30,732	954,761	253,798
1977	197,773	371,107	90,284	25,578	148,902	3,722	324,680	26,568	586,530	154,162
1978	299,484	469,586	77,762	22,023	128,242	5,183	220,997	38,300	425,352	110,755
1979	355,316	938,378	81,112	21,617	133,767	5,921	232,047	44,097	400,454	107,536
1980	1,853,013	1,772,711	419,878	112,218	692,468	32,168	1,236,345	238,954	2,023,970	543,417
1981	(156,923)	612,460	(46,367)	(8,513)	(76,461)	(2,545)	(161,708)	(19,373)	(137,716)	(41,876)
1982	1,552,013	860,286	297,765	79,314	491,074	26,131	815,270	195,886	1,428,687	390,183
1983	2,056,333	519,515	395,245	116,725	651,832	34,583	1,070,258	259,114	2,144,782	586,635
1984	1,508,602	295,590	297,070	85,556	489,925	27,078	801,638	187,339	1,554,677	425,532
1985	892,413	158,415	220,176	63,367	363,115	13,230	581,234	107,430	1,136,970	310,679
1986	889,206	104,533	240,898	63,330	397,286	10,569	648,212	102,744	1,157,970	316,104
1987	343,342	105,387	195,395	52,731	322,248	5,938	519,862	43,104	973,477	264,953
1988	427,785	243,168	129,968	43,622	214,342	6,780	375,690	50,048	828,387	222,871
1989	1,092,212	448,060	359,889	114,747	593,534	18,249	1,006,420	133,739	731,537	201,862
1990	650,584	367,165	369,503	122,699	609,382	7,532	1,027,160	67,554	2,155,822	585,453
1991	839,864	402,401	416,244	170,494	686,470	12,227	1,123,709	94,092	3,086,305	842,196
1992	636,629	357,771	324,306	234,175	534,847	9,621	731,437	77,129	4,207,112	1,151,104
1993	633,537	331,913	308,362	321,104	508,563	10,174	592,880	73,834	6,542,587	1,785,610
1994	501,042	173,430	163,395	155,098	269,471	7,822	343,180	57,434	3,464,495	943,880
1995	484,470	240,714	130,033	117,740	214,456	7,905	309,981	57,819	2,729,185	736,189
1996	355,200	201,062	136,570	64,102	225,223	5,860	409,719	42,996	4,435,709	1,101,929
1997	74,652	48,133	23,678	22,069	39,053	1,305	68,044	9,638	2,952,869	423,296
1998	135,288	361,373	29,499	13,562	48,652	2,317	106,027	17,234	11,137,010	71,992
1999	87,441	47,436	15,711	3,974	25,911	1,463	66,247	10,980	7,415,240	26,314
2000	1,346	11,598	244	61	401	22	14,754	169	1,088	299
2001 2002 2003 2004 2005	1,346 1,346 0 0	11,598 11,598 0 0	244 244 0 0	61 61 0 0	401 401 0 0	22 22 0 0 0	14,754 14,754 0 0	169 169 0 0	1,088 1,088 0 0	299 299 0 0
2006 2007 2008 2009 2010	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
Total	50,184,774	32,073,291	14,569,703	5,023,618	24,028,570	903,324	41,068,498	6,617,405	124,907,412	27,463,781

d) Costs from Table B-10 allocated to Castaic Lake Water Agency are reduced herein by \$14,088 in 1978 in accordance with a letter of agreement with the district.

TABLE B-14 Capital Costs of Transportation Facilities Allocated to Each Contractor (Dollars)

Sheet 4 of 4

		Southern Californ	nia Area (continue	,	Dollars	Feather F	River Area			Sneet 4 of 4
Calendar Year	San Gorgonio Pass Water Agency (31)	Metropolitan Water District of Southern California (3 (32)	Ventura County Flood Control District (33)	Total (34)	City of Yuba City (35)	County of Butte (36)	Plumas County FC&WCD (37)	Total (38)	South Bay Area Future Contractor (39)	Grand Total (40)
- rear	(31)	(32)	(33)	(34)	(30)	(30)	(37)	(30)	(33)	(40)
1952 1953 1954 1955	956 2,991 3,876 1,461	68,693 216,553 278,568 111,025	369 1,182 1,484 667	87,060 274,358 352,937 140,585	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	59 263 767 969	99,659 312,681 403,204 169,849
1956 1957 1958 1959 1960	2,108 6,477 11,616 15,710 23,160	178,209 512,800 939,853 1,357,052 1,905,804	1,290 3,345 6,351 9,841 12,745	225,449 648,760 1,188,585 1,709,548 2,388,993	0 0 0 0	0 0 0 0	0 0 2 14 28	0 0 2 14 28	9,173 23,173 32,888 57,919 123,202	352,235 1,465,645 2,289,446 2,976,657 4,674,565
1961 1962 1963 1964 1965	35,950 39,788 98,824 169,129 314,367	3,198,987 3,530,391 11,157,911 17,999,845 33,635,064	18,681 28,989 86,618 164,197 306,470	3,940,105 4,479,828 13,730,398 22,667,536 42,171,616	0 0 0 0	0 0 0 0	10 32 51 7,791 3,139	10 32 51 7,791 3,139	316,221 228,201 528,495 590,035 332,680	8,563,515 8,911,936 24,757,554 41,997,803 62,664,743
1966 1967 1968 1969 1970	650,442 952,071 1,304,562 1,713,647 2,143,017	74,215,089 130,119,611 146,779,400 139,233,059 161,033,519	679,853 1,275,287 1,355,310 1,079,044 1,142,447	92,272,017 156,354,314 178,174,474 174,857,621 201,773,277	0 0 0 0	0 0 0 0	(48) 47 51,573 234,232 16,227	(48) 47 51,573 234,232 16,227	783,728 1,479,421 1,254,192 398,182 74,028	129,110,330 194,146,365 197,978,910 184,473,490 207,082,650
1971 1972 1973 1974 1975	1,228,258 431,624 255,703 261,935 251,974	133,077,527 43,753,878 39,660,726 18,781,493 16,653,331	735,996 65,817 289,610 85,860 83,719	156,424,210 50,893,153 44,517,424 23,393,098 20,521,746	0 0 0 0	0 0 0 0	27,204 9 25 45 21	27,204 9 25 45 21	12,456 13,183 8,098 28,569 8,224	158,624,739 51,936,781 45,263,853 24,402,166 21,318,838
1976 1977 1978 1979 1980	157,582 95,688 68,540 66,319 334,980	13,489,128 11,732,599 15,745,988 27,593,994 59,279,186	84,418 110,699 174,659 343,132 639,895	16,240,383 13,868,292 17,786,871 30,323,690 69,179,203	0 0 0 0	0 0 0 0	51 28 38 23 26	51 28 38 23 26	16,485 21,182 28,876 26,667 59,168	17,492,910 15,544,382 19,073,475 31,864,030 74,990,321
1981 1982 1983 1984 1985	(25,317) 240,017 360,919 261,684 191,075	15,738,613 30,866,799 25,103,103 16,353,101 10,337,915	224,871 315,502 186,447 103,090 56,014	15,899,145 37,558,927 33,485,491 22,390,882 14,432,033	0 0 0 0	0 0 0 0	34 11 19 26 29	34 11 19 26 29	(6,747) 16,086 72,225 83,253 16,338	15,765,963 39,882,004 38,305,015 30,610,462 28,834,897
1986 1987 1988 1989 1990	194,492 163,156 137,512 119,142 360,125	8,938,231 7,959,664 10,538,414 15,526,231 20,689,621	34,654 36,055 81,578 158,002 122,961	13,098,229 10,985,312 13,300,165 20,503,624 27,135,561	0 0 0 0	0 0 0 0	31 32 55 45 63	31 32 55 45 63	16,250 29,063 50,088 43,428 93,829	42,051,452 34,062,005 23,870,995 30,010,944 38,906,057
1991 1992 1993 1994 1995	517,866 707,847 1,101,274 583,228 475,254	26,702,806 32,504,326 43,884,099 22,751,920 20,391,145	132,698 117,251 105,594 56,200 76,140	35,027,372 41,593,555 56,199,531 29,470,595 25,971,031	0 0 0 0	0 0 0 0	54 42 29 11 16	54 42 29 11 16	150,382 82,920 60,155 36,323 47,824	47,750,670 49,865,655 72,359,043 83,708,348 155,708,761
1996 1997 1998 1999 2000	1,023,973 3,075,352 20,308,720 13,644,133 183	26,196,384 9,270,079 10,666,817 1,443,942 20,133	55,207 12,368 126,586 12,772 197	34,253,934 16,020,536 43,025,077 22,801,564 50,495	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	7,102 15,007 11,063 6,976 174	139,506,936 49,184,439 46,109,680 25,380,043 184,199
2001 2002 2003 2004 2005	183 183 0 0	20,133 20,133 0 0	197 197 0 0	50,495 50,495 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	174 174 0 0	184,199 184,199 0 0
2006 2007 2008 2009 2010	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0 0	0 0 0 0
Total	54,083,756	1,462,162,892	10,802,556	1,853,889,580	0	0	341,065	341,065	7,288,591	2,525,368,698

e) Costs from Table B-10 allocated to MWDSC are reduced herein by \$16,425,510 in 1972 under provisions of Amendment No. 7 to it s water contract.

TABLE B-15 Capital Cost Component of Transportation Charge for Each Contractor a) b)

(Dollars) Sheet 1 of 4

	1	North Ray Ara	a	<b>i</b>	,	uth Bay Area		_	entral Coastal	Sheet 1 of 4
Calendar	Napa County FC&WCD	Solano County WA	Total	Alameda County FC&WCD, Zone 7	Alameda County Water District	Santa Clara Valley Water District	Total	San Luis Obispo County FC&WCD	Santa Santa Barbara County FC&WCD	Total
Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1961 1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0	0 0 105,192 123,718 156,271	0 0 105,854 171,212 260,368	0 0 366,552 532,023 901,943	0 577,598 826,953 1,318,582	0 0 0 6,064 11,435	0 0 0 20,521 31,771	0 0 0 26,585 43,206
1966 1967 1968 1969 1970	18,096 41,644 121,705 165,555 169,349	0 0 0 0	18,096 41,644 121,705 165,555 169,349	172,750 199,825 236,230 269,871 282,190	291,282 321,511 362,521 398,029 412,989	1,076,118 1,190,648 1,313,170 1,415,086 1,454,107	1,540,150 1,711,984 1,911,921 2,082,986 2,149,286	20,198 38,006 51,764 55,088 56,731	49,707 84,262 111,464 118,999 123,183	69,905 122,268 163,228 174,087 179,914
1971	171,561	0	171,561	284,871	416,111	1,461,022	2,162,004	57,723	126,079	183,802
1972	172,926	0	172,926	332,088	417,041	1,465,312	2,214,441	58,298	128,562	186,860
1973	173,928	31,433	205,361	332,715	417,692	1,468,557	2,218,964	58,574	129,819	188,393
1974	176,811	33,008	209,819	333,251	418,311	1,470,565	2,222,127	58,765	130,871	189,636
1975	185,270	36,366	221,636	334,053	419,556	1,474,295	2,227,904	59,014	132,106	191,120
1976	189,954	40,918	230,872	334,906	420,362	1,476,407	2,231,675	165,886	331,018	496,904
1977	192,901	45,185	238,086	336,641	422,130	1,481,998	2,240,769	167,602	337,672	505,274
1978	196,174	49,273	245,447	338,999	424,431	1,488,802	2,252,232	173,127	351,175	524,302
1979	199,710	53,442	253,152	342,633	427,799	1,497,724	2,268,156	174,219	356,471	530,690
1980	209,467	67,873	277,340	344,952	429,989	1,503,369	2,278,310	175,390	362,882	538,272
1981	222,956	87,563	310,519	351,814	436,333	1,518,907	2,307,054	180,657	386,494	567,151
1982	234,566	107,105	341,671	350,093	434,810	1,515,559	2,300,462	179,870	379,596	559,466
1983	262,580	151,516	414,096	350,495	435,234	1,516,940	2,302,669	180,080	376,592	556,672
1984	326,593	224,617	551,210	357,555	441,943	1,534,245	2,333,743	181,722	382,218	563,940
1985	456,562	364,899	821,461	365,360	449,134	1,552,197	2,366,691	183,530	387,713	571,243
1986 1987 1988 1989	820,939 1,362,839 1,774,438 1,894,745 1,958,754	693,593 1,561,716 2,211,596 2,437,243 2,520,867	1,514,532 2,924,555 3,986,034 4,331,988 4,479,621	366,368 368,011 370,598 377,327 383,151	450,116 451,735 454,246 460,713 466,235	1,554,926 1,559,442 1,566,610 1,583,833 1,597,786	2,371,410 2,379,188 2,391,454 2,421,873 2,447,172	184,419 186,682 193,233 201,720 209,752	391,738 407,455 476,682 554,123 617,495	576,157 594,137 669,915 755,843 827,247
1991	1,982,040	2,567,876	4,549,916	394,600	477,704	1,629,825	2,502,129	219,952	682,529	902,481
1992	1,987,330	2,572,867	4,560,197	416,499	498,010	1,679,948	2,594,457	233,973	776,996	1,010,969
1993	1,990,394	2,576,932	4,567,326	426,243	507,103	1,703,614	2,636,960	251,067	930,211	1,181,278
1994	1,996,979	2,587,253	4,584,232	433,212	513,856	1,722,069	2,669,137	313,676	1,526,043	1,839,719
1995	2,000,943	2,596,763	4,597,706	435,770	517,062	1,734,680	2,687,512	560,731	3,969,209	4,529,940
1996	2,003,408	2,601,281	4,604,689	441,505	522,747	1,749,775	2,714,027	1,331,016	12,314,832	13,645,848
1997	2,005,036	2,604,670	4,609,706	444,561	525,712	1,757,672	2,727,945	2,129,352	22,002,607	24,131,959
1998	2,009,173	2,607,662	4,616,835	446,009	527,194	1,761,843	2,735,046	2,398,009	24,863,418	27,261,427
1999	2,025,762	2,622,633	4,648,395	448,569	529,693	1,768,444	2,746,706	2,402,216	24,899,366	27,301,582
2000	2,044,321	2,666,630	4,710,951	450,192	531,177	1,771,980	2,753,349	2,404,182	24,907,822	27,312,004
2001	2,044,322	2,666,633	4,710,955	450,226	531,208	1,772,054	2,753,488	2,405,098	24,909,512	27,314,610
2002	2,044,324	2,666,637	4,710,961	450,261	531,239	1,772,128	2,753,628	2,406,025	24,911,221	27,317,246
2003	2,044,325	2,666,640	4,710,965	450,295	531,271	1,772,204	2,753,770	2,406,963	24,912,953	27,319,916
2004	2,044,325	2,666,640	4,710,965	450,295	531,271	1,772,204	2,753,770	2,406,963	24,912,953	27,319,916
2005	2,044,325	2,666,640	4,710,965	450,295	531,271	1,772,204	2,753,770	2,406,963	24,912,953	27,319,916
2006	2,044,325	2,666,640	4,710,965	450,295	531,271	1,772,204	2,753,770	2,406,963	24,912,953	27,319,916
2007	2,044,325	2,666,640	4,710,965	450,295	531,271	1,772,204	2,753,770	2,406,963	24,912,953	27,319,916
2008	2,044,325	2,666,640	4,710,965	450,295	531,271	1,772,204	2,753,770	2,406,963	24,912,953	27,319,916
2009	2,044,325	2,666,640	4,710,965	450,295	531,271	1,772,204	2,753,770	2,406,963	24,912,953	27,319,916
2010	2,044,325	2,666,640	4,710,965	450,295	531,271	1,772,204	2,753,770	2,406,963	24,912,953	27,319,916
2011	2,044,325	2,666,640	4,710,965	450,295	531,271	1,772,204	2,753,770	2,406,963	24,912,953	27,319,916
2012	2,044,325	2,666,640	4,710,965	450,295	531,271	1,772,204	2,753,770	2,406,963	24,912,953	27,319,916
2013	2,044,325	2,666,640	4,710,965	339,164	425,417	1,405,652	2,170,233	2,406,963	24,912,953	27,319,916
2014	2,044,325	2,666,640	4,710,965	303,833	360,059	1,240,181	1,904,073	2,400,900	24,892,432	27,293,332
2015	2,044,325	2,666,640	4,710,965	265,831	270,903	870,260	1,406,994	2,395,528	24,881,182	27,276,710
2016	2,026,229	2,666,640	4,692,869	246,733	239,989	696,086	1,182,808	2,386,765	24,863,246	27,250,011
2017	2,002,681	2,666,640	4,669,321	215,577	209,760	581,555	1,006,892	2,368,958	24,828,691	27,197,649
2018	1,922,620	2,666,640	4,589,260	173,959	168,750	459,034	801,743	2,355,199	24,801,489	27,156,688
2019	1,878,770	2,666,640	4,545,410	135,744	133,242	357,118	626,104	2,351,875	24,793,954	27,145,829
2020	1,874,976	2,666,640	4,541,616	121,833	118,282	318,097	558,212	2,350,233	24,789,770	27,140,003
2021	1,872,764	2,666,640	4,539,404	118,823	115,160	311,182	545,165	2,349,240	24,786,874	27,136,114
2022	1,871,399	2,666,640	4,538,039	118,207	114,230	306,892	539,329	2,348,665	24,784,391	27,133,056
2023	1,870,397	2,635,207	4,505,604	117,580	113,579	303,647	534,806	2,348,389	24,783,134	27,131,523
2024	1,867,514	2,633,632	4,501,146	117,045	112,960	301,639	531,644	2,348,198	24,782,082	27,130,280
2025	1,859,055	2,630,274	4,489,329	116,243	111,716	297,909	525,868	2,347,949	24,780,847	27,128,796
2026	1,854,371	2,625,722	4,480,093	115,389	110,909	295,797	522,095	2,241,077	24,581,935	26,823,012
2027	1,851,424	2,621,455	4,472,879	113,655	109,141	290,206	513,002	2,239,362	24,575,281	26,814,643
2028	1,848,151	2,617,367	4,465,518	111,296	106,840	283,402	501,538	2,233,836	24,561,778	26,795,614
2029	1,844,615	2,613,199	4,457,814	107,663	103,472	274,480	485,615	2,232,744	24,556,482	26,789,226
2030	1,834,858	2,598,767	4,433,625	105,343	101,282	268,835	475,460	2,231,574	24,550,071	26,781,645
2031	1,821,369	2,579,077	4,400,446	98,481	94,939	253,296	446,716	2,226,307	24,526,459	26,752,766
2032	1,809,759	2,559,535	4,369,294	100,202	96,461	256,645	453,308	2,227,093	24,533,357	26,760,450
2033	1,781,745	2,515,125	4,296,870	99,800	96,037	255,264	451,101	2,226,884	24,536,361	26,763,245
2034	1,717,732	2,442,023	4,159,755	92,740	89,328	237,959	420,027	2,225,242	24,530,735	26,755,977
2035	1,587,763	2,301,741	3,889,504	84,936	82,137	220,007	387,080	2,223,433	24,525,240	26,748,673
Total	99,408,472	128,761,974	228,170,446	21,662,602	26,027,695	87,169,358	134,859,655	97,460,890	991,268,708	1,088,729,598

unadjusted for prior overpayments or underpayments of charges.
 Determined at the current Project Interest Rate of 4.620 percent per annum.

TABLE B-15

#### **Capital Cost Component of Transportation Charge for Each Contractor**

(Dollars)

Sheet 2 of 4

					San Joaquin V	/allev Area				Sheet 2 of
				Vor	•					
Calendar Year	Dudley Ridge Water (11)	Empire West Side Irrigation (12)	Future Contractor San Joaquin (13)	Municipal and Industrial (14)	County Water Age  Municipal and Industrial (c (15)	Agricultural (16)	County of Kings (17)	Oak Flat Water District (18)	Tulare Lake Basin Water Storage District (19)	Total (20)
	0	0		0	0		0	0	• • •	0
1961 1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 2,729 6,039	0 0 0 0 64,321	0 0 0 0 9,300	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 2,729 79,660
1966	0	0	12,059	120,302	17,101	0	0	0	0	149,462
1967	0	0	26,300	233,357	34,405	0	0	0	0	294,062
1968	77,372	2,431	49,028	335,835	49,045	415,488	8,519	4,711	64,370	1,006,799
1969	77,508	7,292	57,510	391,869	52,620	853,267	9,027	5,121	243,554	1,697,768
1970	84,947	7,292	59,319	423,126	54,008	1,037,829	9,277	5,326	180,235	1,861,359
1971	96,851	7,292	60,426	444,138	54,800	1,378,423	9,419	5,736	191,795	2,248,880
1972	108,213	7,292	61,043	453,793	55,163	2,064,068	9,486	10,992	591,676	3,361,726
1973	119,035	7,292	61,469	457,993	55,337	2,380,588	9,517	6,350	228,851	3,326,432
1974	180,662	7,292	61,989	460,020	55,438	2,665,902	9,534	7,110	379,855	3,827,802
1975	219,429	7,292	62,552	462,324	55,579	3,193,019	9,559	7,325	453,257	4,470,336
1976	167,303	7,292	62,820	464,178	55,768	3,442,045	9,594	8,274	324,250	4,541,524
1977	164,484	7,292	63,464	466,877	56,055	3,771,493	9,638	7,579	310,026	4,856,908
1978	175,847	7,292	65,901	468,730	56,246	4,192,331	9,660	7,989	332,621	5,316,617
1979	208,549	7,292	66,217	471,490	56,582	4,603,361	9,722	8,194	374,348	5,805,755
1980	221,837	7,292	66,506	474,232	56,919	5,023,308	9,789	11,676	376,760	6,248,319
1981	221,837	7,292	68,095	490,612	58,864	5,497,642	10,181	8,808	399,355	6,762,686
1982	221,837	7,292	68,105	488,352	58,801	5,935,420	10,166	9,218	421,425	7,220,616
1983	232,117	7,292	68,442	492,599	59,472	6,433,828	10,301	9,423	50,172	7,363,646
1984	244,021	7,292	69,061	498,222	60,180	6,883,198	10,442	9,832	329,000	8,111,248
1985	255,383	7,292	69,790	506,139	61,341	7,320,976	10,675	10,037	239,345	8,480,978
1986	266,746	7,292	70,078	508,536	61,686	7,755,188	10,744	10,447	510,754	9,201,471
1987	278,108	7,292	70,584	512,210	62,216	8,197,425	10,847	10,652	532,824	9,682,158
1988	289,470	7,292	70,945	515,071	62,627	8,610,238	10,924	11,062	554,893	10,132,522
1989	300,833	7,292	72,008	520,495	63,460	8,908,035	11,117	11,471	577,488	10,472,199
1990	312,195	7,292	73,488	539,245	65,750	9,217,422	11,555	11,676	622,678	10,861,301
1991	312,195	7,292	76,105	568,091	70,306	9,217,422	12,364	11,676	622,678	10,898,129
1992	312,195	7,292	79,306	598,839	75,167	9,217,422	13,345	11,676	622,678	10,937,920
1993	312,195	7,292	80,806	611,742	77,014	9,217,422	13,696	11,676	622,678	10,954,521
1994	312,195	7,292	82,435	621,133	78,299	9,217,422	13,937	11,676	622,678	10,967,067
1995	312,195	7,292	83,602	629,658	79,543	9,217,422	14,180	11,676	622,678	10,978,246
1996	288,767	7,292	85,246	639,582	80,989	8,890,470	14,440	11,676	622,678	10,641,140
1997	288,767	7,292	87,486	646,768	82,019	8,854,806	14,621	11,676	622,678	10,616,113
1998	288,767	7,292	88,213	649,890	82,507	8,631,904	14,717	11,676	622,678	10,397,644
1999	288,767	7,292	89,307	656,415	83,553	8,631,904	14,927	11,676	622,678	10,406,519
2000	288,767	7,292	90,093	661,015	84,300	8,631,904	15,079	11,676	622,678	10,412,804
2001 2002 2003 2004 2005	288,767 288,767 288,767 288,767 288,767	7,292 7,292 7,292 7,292 7,292	90,531 90,974 91,422 91,422 91,422	661,041 661,067 661,093 661,093	84,304 84,308 84,312 84,312 84,312	8,631,904 8,631,904 8,631,904 8,631,904 8,631,904	15,080 15,081 15,082 15,082 15,082	11,676 11,676 11,676 11,676 11,676	622,678 622,678 622,678 622,678 622,678	10,413,273 10,413,747 10,414,226 10,414,226 10,414,226
2006 2007 2008 2009 2010	288,767 288,767 288,767 288,767 288,767	7,292 7,292 7,292 7,292 7,292	91,422 91,422 91,422 91,422 91,422	661,093 661,093 661,093 661,093	84,312 84,312 84,312 84,312 84,312	8,631,904 8,631,904 8,631,904 8,631,904 8,631,904	15,082 15,082 15,082 15,082 15,082	11,676 11,676 11,676 11,676 11,676	622,678 622,678 622,678 622,678 622,678	10,414,226 10,414,226 10,414,226 10,414,226 10,414,226
2011	288,767	7,292	91,422	661,093	84,312	8,631,904	15,082	11,676	622,678	10,414,226
2012	288,767	7,292	91,422	661,093	84,312	8,631,904	15,082	11,676	622,678	10,414,226
2013	288,767	7,292	91,422	661,093	84,312	8,631,904	15,082	11,676	622,678	10,414,226
2014	288,767	7,292	88,693	661,093	84,312	8,631,904	15,082	11,676	622,678	10,411,497
2015	288,767	7,292	85,383	596,772	75,012	8,631,904	15,082	11,676	622,678	10,334,566
2016	288,767	7,292	79,363	540,792	67,210	8,631,904	15,082	11,676	622,678	10,264,764
2017	288,767	7,292	65,122	427,736	49,906	8,631,904	15,082	11,676	622,678	10,120,163
2018	288,767	7,292	42,394	325,259	35,267	8,631,904	6,563	11,676	622,678	9,971,800
2019	288,767	7,292	33,912	269,224	31,692	8,631,904	6,055	11,676	622,678	9,903,200
2020	288,767	7,292	32,103	237,967	30,303	8,631,904	5,805	11,676	622,678	9,868,495
2021	288,767	7,292	30,996	216,956	29,512	8,631,904	5,663	11,676	622,678	9,845,444
2022	288,767	7,292	30,380	207,300	29,149	8,631,904	5,595	11,676	622,678	9,834,741
2023	288,767	7,292	29,953	203,100	28,975	8,631,904	5,565	11,676	622,678	9,829,910
2024	288,767	7,292	29,433	201,073	28,874	8,631,904	5,547	11,676	622,678	9,827,244
2025	288,767	7,292	28,870	198,769	28,733	8,631,904	5,523	11,676	622,678	9,824,212
2026	288,767	7,292	28,602	196,916	28,544	8,631,904	5,488	11,676	622,678	9,821,867
2027	288,767	7,292	27,958	194,217	28,257	8,631,904	5,444	11,676	622,678	9,818,193
2028	288,767	7,292	25,521	192,363	28,065	8,631,904	5,421	11,676	622,678	9,813,687
2029	288,767	7,292	25,205	189,604	27,730	8,631,904	5,360	11,676	622,678	9,810,216
2030	288,767	7,292	24,916	186,862	27,393	8,631,904	5,292	11,676	622,678	9,806,780
2031	288,767	7,292	23,327	170,481	25,448	8,631,904	4,900	11,676	622,678	9,786,473
2032	288,767	7,292	23,317	172,741	25,510	8,631,904	4,915	11,676	622,678	9,788,800
2033	288,767	7,292	22,980	168,495	24,840	8,631,904	4,781	11,676	622,678	9,783,413
2034	288,767	7,292	22,361	162,871	24,132	8,631,904	4,640	11,676	622,678	9,776,321
2035	288,767	7,292	21,632	154,955	22,970	8,631,904	4,406	11,676	622,678	9,766,280
Total	17,636,239	490,995	4,398,134	32,016,876	4,060,338	501,625,232	724,353	724,429	36,310,042	597,986,638

c) Charges under Amendment No. 18 of the water supply contract with Kern County Water Agency.

TABLE B-15

Capital Cost Component of Transportation Charge for Each Contractor

(Dollars)

Sheet 3 of 4

				Sheet 3 of 4						
Colondor	Antelope Valley-East Kern Water Agency	Castaic Lake Water Agency	Coachella Valley Water District	Crestline- Lake Arrowhead Water Agency	Desert Water Agency	Littlerock Creek Irrigation District	Mojave Water Agency	Palmdale Water District	San Bernardino Valley Municipal Water District	San Gabriel Valley Municipal Water District
Calendar Year	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0
1963	33,153	0	0	0	0	0	0	0	51,523	0
1964	62,632	27,409	14,353	4,353	36,951	1,138	42,521	8,171	82,521	34,841
1965	118,196	52,938	24,978	7,166	40,580	2,074	77,549	15,164	134,596	35,209
1966	215,076	101,133	44,529	12,429	72,823	3,739	142,039	27,578	231,665	61,227
1967	416,139	210,574	85,730	23,376	140,772	7,256	281,002	53,826	431,696	115,106
1968	668,367	419,221	140,262	38,371	230,706	11,729	474,134	86,918	726,750	193,653
1969	967,882	622,467	208,470	56,975	343,195	17,152	681,312	126,530	1,130,852	301,082
1970	1,262,098	778,724	293,796	84,287	483,918	23,275	910,349	170,228	1,682,773	441,250
1971	1,516,356	945,212	397,253	119,465	654,542	28,644	1,173,941	207,423	2,382,281	616,155
1972	1,646,588	1,054,339	451,282	136,577	743,649	31,084	1,316,055	224,951	2,810,749	716,734
1973	1,695,774	1,068,642	468,010	141,225	771,237	32,050	1,362,528	231,737	2,947,517	752,094
1974	1,713,691	1,115,225	476,031	145,402	784,467	32,369	1,379,872	234,067	3,037,020	772,596
1975	1,736,509	1,129,482	489,089	149,141	806,002	32,780	1,415,268	237,055	3,118,795	794,119
1976	1,749,326	1,142,020	498,840	151,803	822,083	33,030	1,441,339	238,773	3,196,463	814,769
1977	1,761,346	1,155,012	505,730	153,681	833,446	33,245	1,460,764	240,341	3,245,167	827,715
1978	1,771,435	1,173,942	510,336	154,986	841,042	33,435	1,477,326	241,696	3,275,086	835,579
1979	1,786,712	1,197,896	514,302	156,109	847,583	33,699	1,488,599	243,649	3,296,783	841,229
1980	1,804,837	1,245,764	518,440	157,212	854,407	34,001	1,500,436	245,899	3,317,211	846,715
1981	1,899,360	1,336,191	539,858	162,936	889,730	35,642	1,563,503	258,088	3,420,455	874,435
1982	1,891,356	1,367,433	537,493	162,502	885,830	35,512	1,555,254	257,100	3,413,430	872,299
1983	1,970,525	1,411,317	552,682	166,548	910,880	36,845	1,596,842	267,092	3,486,309	892,202
1984	2,075,420	1,437,818	572,844	172,502	944,131	38,610	1,651,436	280,310	3,595,716	922,127
1985	2,152,375	1,452,896	587,998	176,867	969,122	39,991	1,692,329	289,866	3,675,021	943,834
1986	2,197,898	1,460,977	599,229	180,099	987,645	40,666	1,721,978	295,346	3,733,019	959,682
1987	2,243,503	1,466,338	611,584	183,347	1,008,021	41,208	1,755,223	300,616	3,792,408	975,894
1988	2,261,213	1,471,774	621,663	186,067	1,024,642	41,514	1,782,038	302,839	3,842,620	989,560
1989	2,283,410	1,484,392	628,407	188,330	1,035,764	41,866	1,801,532	305,436	3,885,605	1,001,125
1990	2,340,443	1,507,789	647,199	194,322	1,066,757	42,819	1,854,085	312,420	3,923,804	1,011,666
1991	2,374,642	1,527,089	666,622	200,772	1,098,790	43,215	1,908,078	315,971	4,037,126	1,042,440
1992	2,419,099	1,548,390	688,656	209,797	1,135,128	43,862	1,967,561	320,951	4,200,497	1,087,021
1993	2,453,048	1,567,468	705,950	222,284	1,163,649	44,375	2,006,565	325,064	4,424,844	1,148,404
1994	2,487,095	1,585,306	722,521	239,541	1,190,980	44,922	2,038,427	329,032	4,776,451	1,244,365
1995	2,514,243	1,594,703	731,375	247,945	1,205,580	45,346	2,057,022	332,144	4,964,168	1,295,508
1996	2,540,721	1,607,858	738,481	254,380	1,217,301	45,778	2,073,963	335,304	5,113,327	1,335,743
1997	2,560,311	1,618,948	746,014	257,915	1,229,723	46,101	2,096,561	337,676	5,357,973	1,396,518
1998	2,564,468	1,621,628	747,332	259,144	1,231,898	46,173	2,100,350	338,212	5,522,411	1,420,091
1999	2,572,079	1,641,958	748,992	259,907	1,234,635	46,304	2,106,315	339,182	6,148,947	1,424,141
2000	2,577,052	1,644,655	749,885	260,133	1,236,108	46,387	2,110,082	339,806	6,570,618	1,425,637
2001 2002 2003 2004 2005	2,577,129 2,577,208 2,577,287 2,577,287 2,577,287	1,645,322 1,645,998 1,646,681 1,646,681 1,646,681	749,899 749,914 749,928 749,928 749,928	260,136 260,140 260,144 260,144 260,144	1,236,131 1,236,155 1,236,178 1,236,178 1,236,178	46,388 46,390 46,391 46,391	2,110,931 2,111,790 2,112,659 2,112,659 2,112,659	339,816 339,826 339,836 339,836 339,836	6,570,681 6,570,744 6,570,808 6,570,808 6,570,808	1,425,654 1,425,672 1,425,689 1,425,689 1,425,689
2006 2007 2008 2009 2010	2,577,287 2,577,287 2,577,287 2,577,287 2,577,287	1,646,681 1,646,681 1,646,681 1,646,681	749,928 749,928 749,928 749,928 749,928	260,144 260,144 260,144 260,144 260,144	1,236,178 1,236,178 1,236,178 1,236,178 1,236,178	46,391 46,391 46,391 46,391	2,112,659 2,112,659 2,112,659 2,112,659 2,112,659	339,836 339,836 339,836 339,836 339,836	6,570,808 6,570,808 6,570,808 6,570,808 6,570,808	1,425,689 1,425,689 1,425,689 1,425,689 1,425,689
2011	2,577,287	1,646,681	749,928	260,144	1,236,178	46,391	2,112,659	339,836	6,570,808	1,425,689
2012	2,577,287	1,646,681	749,928	260,144	1,236,178	46,391	2,112,659	339,836	6,570,808	1,425,689
2013	2,544,134	1,646,681	749,928	260,144	1,222,899	46,391	2,112,659	339,836	6,519,286	1,412,648
2014	2,514,655	1,619,273	735,575	255,791	1,213,122	45,253	2,070,139	331,664	6,488,287	1,404,491
2015	2,459,091	1,593,743	724,950	252,978	1,195,598	44,317	2,035,110	324,671	6,436,213	1,390,480
2016	2,362,211	1,545,548	705,399	247,714	1,163,355	42,652	1,970,620	312,257	6,339,144	1,364,463
2017	2,161,148	1,436,108	664,198	236,767	1,095,407	39,134	1,831,657	286,010	6,139,112	1,310,583
2018	1,908,919	1,227,460	609,666	221,773	1,005,472	34,662	1,638,526	252,917	5,844,059	1,232,036
2019	1,609,405	1,024,214	541,458	203,169	892,984	29,239	1,431,348	213,305	5,439,957	1,124,607
2020	1,315,188	867,957	456,131	175,856	752,260	23,116	1,202,311	169,608	4,888,036	984,440
2021	1,060,930	701,469	352,675	140,679	581,636	17,747	938,719	132,413	4,188,527	809,534
2022	930,699	592,342	298,646	123,567	492,530	15,306	796,605	114,884	3,760,060	708,956
2023	881,513	578,040	281,918	118,919	464,941	14,341	750,132	108,099	3,623,292	673,595
2024	863,596	531,457	273,896	114,742	451,711	14,022	732,787	105,769	3,533,788	653,093
2025	840,778	517,199	260,839	111,003	430,177	13,611	697,391	102,781	3,452,014	631,570
2026	827,961	504,661	251,088	108,340	414,095	13,360	671,321	101,063	3,374,345	610,920
2027	815,941	491,670	244,198	106,462	402,732	13,146	651,896	99,495	3,325,642	597,974
2028	805,852	472,739	239,592	105,158	395,136	12,956	635,334	98,140	3,295,723	590,110
2029	790,575	448,785	235,626	104,034	388,595	12,691	624,060	96,186	3,274,025	584,460
2030	772,450	400,918	231,488	102,931	381,771	12,389	612,223	93,937	3,253,598	578,975
2031	677,927	310,490	210,070	97,207	346,448	10,749	549,156	81,747	3,150,353	551,255
2032	685,931	279,248	212,435	97,641	350,348	10,878	557,405	82,736	3,157,378	553,391
2033	606,762	235,364	197,246	93,596	325,298	9,545	515,818	72,743	3,084,500	533,487
2034	501,867	208,864	177,084	87,641	292,048	7,781	461,223	59,526	2,975,093	503,563
2035	424,912	193,785	161,930	83,277	267,056	6,400	420,331	49,969	2,895,787	481,856
Total	126,594,030	80,981,073	36,601,345	12,449,001	60,333,402	2,284,210	103,320,260	16,724,219	300,271,921	67,657,468

TABLE B-15

### Capital Cost Component of Transportation Charge for Each Contractor

(Dollars)

	So	outhern California	a Area (continue	,	Joliais)		River Area			Sheet 4 of 4
Calendar Year	San Gorgonio Pass Water Agency (31)	Metropolitan Water District of Southern California (32)	Ventura County Flood Control District (33)	Total (34)	City of Yuba City (35)	County	Plumas County FC&WCD (37)	Total (38)	South Bay Area Future Contractor (39)	Grand Total (40)
1961 1962 1963 1964 1965	0 0 0 21,648 21,784	0 0 688,882 1,258,056 2,176,243	0 0 0 9,363 17,738	0 0 773,558 1,603,957 2,724,215	0 0 0 0	0 0 0 0	0 0 0 0 405	0 0 0 0 405	0 0 43,197 70,156 100,254	0 0 1,394,353 2,530,380 4,266,322
1966 1967 1968 1969 1970	37,820 71,000 119,566 186,113 273,527	3,891,995 7,677,768 14,315,276 21,802,613 28,905,005	33,372 68,052 133,105 202,240 257,283	4,875,425 9,582,297 17,558,058 26,646,883 35,566,513	0 0 0 0	0 0 0 0	565 563 565 3,196 15,144	565 563 565 3,196 15,144	117,224 157,203 232,669 296,646 316,958	6,770,827 11,910,021 20,994,945 31,067,121 40,258,523
1971 1972 1973 1974 1975	382,844 445,499 467,516 480,560 493,921	37,119,456 43,907,850 46,139,771 48,162,897 49,120,956	315,561 353,104 356,462 371,235 375,615	45,859,133 53,838,461 56,434,563 58,705,432 59,898,732	0 0 0 0	0 0 0 0	15,972 17,360 17,360 17,362 17,364	15,972 17,360 17,360 17,362 17,364	320,734 321,370 322,042 322,455 323,913	50,962,086 60,113,144 62,713,115 65,494,633 67,351,005
1976 1977 1978 1979 1980	506,775 514,813 519,694 523,190 526,573	49,970,456 50,658,548 51,257,037 52,060,253 53,467,845	379,885 384,191 389,838 398,748 416,251	60,945,562 61,773,999 62,481,432 63,388,752 64,935,591	0 0 0 0	0 0 0 0	17,365 17,368 17,369 17,371 17,372	17,365 17,368 17,369 17,371 17,372	324,332 325,173 326,254 327,726 329,087	68,788,234 69,957,577 71,163,653 72,591,602 74,624,291
1981 1982 1983 1984 1985	543,661 542,370 554,613 573,024 586,372	56,491,725 57,294,564 58,869,105 60,149,635 60,983,820	448,893 460,364 476,458 485,969 491,227	68,464,477 69,275,507 71,191,418 72,899,542 74,041,718	0 0 0 0	0 0 0 0	17,374 17,375 17,376 17,377 17,378	17,374 17,375 17,376 17,377 17,378	332,105 331,761 332,581 336,266 340,513	78,761,366 80,046,858 82,178,458 84,813,326 86,639,982
1986 1987 1988 1989	596,119 606,094 614,510 621,645 627,867	61,511,165 61,969,584 62,380,144 62,926,980 63,737,726	494,085 495,862 497,722 501,955 510,205	74,777,908 75,449,682 76,016,306 76,706,447 77,777,102	0 0 0 0	0 0 0 0	17,380 17,381 17,383 17,386 17,388	17,380 17,381 17,383 17,386 17,388	341,346 342,179 343,678 346,538 348,865	88,800,204 91,389,280 93,557,292 95,052,274 96,758,696
1991 1992 1993 1994 1995	646,797 674,210 711,956 771,140 802,741	64,825,287 66,238,779 67,972,091 70,330,477 71,563,246	516,669 523,693 529,945 535,620 538,665	79,203,498 81,057,644 83,275,643 86,295,877 87,892,686	0 0 0 0	0 0 0 0	17,391 17,394 17,396 17,398 17,399	17,391 17,394 17,396 17,398 17,399	353,790 361,732 366,077 369,276 371,158	98,427,334 100,540,313 102,999,201 106,742,706 111,074,647
1996 1997 1998 1999 2000	828,715 885,191 1,056,450 2,198,959 2,974,840	72,677,688 74,122,520 74,638,748 75,238,832 75,320,943	542,827 545,871 546,560 553,682 554,408	89,312,086 91,201,322 92,093,465 94,513,933 95,810,554	0 0 0 0	0 0 0 0	17,399 17,399 17,399 17,399 17,399	17,399 17,399 17,399 17,399 17,399	373,642 374,958 375,600 376,630 377,212	121,308,831 133,679,402 137,497,416 140,011,164 141,394,273
2001 2002 2003 2004 2005	2,974,851 2,974,861 2,974,872 2,974,872 2,974,872	75,322,101 75,323,273 75,324,460 75,324,460 75,324,460	554,419 554,431 554,442 554,442 554,442	95,813,458 95,816,402 95,819,375 95,819,375 95,819,375	0 0 0 0	0 0 0 0	17,399 17,399 17,399 17,399 17,399	17,399 17,399 17,399 17,399 17,399	377,223 377,235 377,247 377,247 377,247	141,400,406 141,406,618 141,412,898 141,412,898 141,412,898
2006 2007 2008 2009 2010	2,974,872 2,974,872 2,974,872 2,974,872 2,974,872	75,324,460 75,324,460 75,324,460 75,324,460 75,324,460	554,442 554,442 554,442 554,442 554,442	95,819,375 95,819,375 95,819,375 95,819,375 95,819,375	0 0 0 0	0 0 0 0	17,399 17,399 17,399 17,399 17,399	17,399 17,399 17,399 17,399 17,399	377,247 377,247 377,247 377,247 377,247	141,412,898 141,412,898 141,412,898 141,412,898 141,412,898
2011 2012 2013 2014 2015	2,974,872 2,974,872 2,966,756 2,961,715 2,953,088	75,324,460 75,324,460 74,635,578 74,066,403 73,148,217	554,442 554,442 554,442 545,080 536,704	95,819,375 95,819,375 95,011,382 94,251,448 93,095,160	0 0 0 0	0 0 0 0	17,399 17,399 17,399 17,399 16,994	17,399 17,399 17,399 17,399 16,994	377,247 377,247 334,050 307,091 276,993	141,412,898 141,412,898 139,978,171 138,895,805 137,118,382
2016 2017 2018 2019 2020	2,937,052 2,903,872 2,855,306 2,788,760 2,701,345	71,432,465 67,646,692 61,009,184 53,521,847 46,419,455	521,071 486,391 421,337 352,202 297,159	90,943,951 86,237,079 78,261,317 69,172,495 60,252,862	0 0 0 0	0 0 0 0	16,834 16,836 16,834 14,203 2,254	16,834 16,836 16,834 14,203 2,254	260,023 220,044 144,578 80,600 60,289	134,611,260 129,467,984 120,942,220 111,487,841 102,423,731
2021 2022 2023 2024 2025	2,592,028 2,529,373 2,507,356 2,494,312 2,480,951	38,205,004 31,416,610 29,184,689 27,161,563 26,203,504	238,882 201,338 197,981 183,207 178,828	49,960,243 41,980,916 39,384,816 37,113,943 35,920,646	0 0 0 0	0 0 0 0	1,427 39 39 37 35	1,427 39 39 37 35	56,512 55,877 55,205 54,791 53,334	92,084,309 84,081,997 81,441,903 79,159,085 77,942,220
2026 2027 2028 2029 2030	2,468,097 2,460,059 2,455,178 2,451,682 2,448,299	25,354,004 24,665,912 24,067,423 23,264,207 21,856,615	174,557 170,251 164,604 155,694 138,191	34,873,812 34,045,378 33,337,945 32,430,620 30,883,785	0 0 0 0	0 0 0 0	34 31 30 28 27	34 31 30 28 27	52,915 52,074 50,993 49,520 48,160	76,573,828 75,716,200 74,965,325 74,023,039 72,429,482
2031 2032 2033 2034 2035	2,431,211 2,432,503 2,420,259 2,401,848 2,388,500	18,832,735 18,029,896 16,455,355 15,174,825 14,340,640	105,549 94,079 77,985 68,474 63,215	27,354,897 26,543,869 24,627,958 22,919,837 21,777,658	0 0 0 0	0 0 0 0	25 24 23 22 21	25 24 23 22 21	45,142 45,486 44,665 40,981 36,734	68,786,465 67,961,231 65,967,275 64,072,920 62,605,950
Total	118,738,099	3,661,806,763	27,293,214	4,615,055,005	0	0	869,855	869,855	18,626,285	6,684,297,482

## TABLE B-16A Minimum OMP&R Component of Transportation Charge for Each Contractor

(Dollars)

Sheet 1 of 4

		North Bay Area			South B	av Area		Ce	entral Coastal A	Sheet 1 of 4
Calendar F Year	Napa County FC&WCD	Solano County Water Agency (2)	Total	Alameda County FC&WCD, Zone 7	Alameda County Water District (5)	Santa Clara	Total (7)	San Luis Obispo County FC&WCD	Santa Barbara County FC&WCD	Total (10)
rear	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1961 1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0	0 9,699 38,048 41,148 78,529	0 8,868 34,788 38,323 75,616	0 0 82,896 91,320 195,792	0 18,567 155,732 170,791 349,937	0 0 0 0	0 0 0 0	0 0 0 0
1966 1967 1968 1969 1970	0 0 130 80,875 94,872	0 0 0 0	0 0 130 80,875 94,872	79,753 127,896 126,058 145,410 128,993	78,779 123,665 120,563 138,051 120,246	218,544 335,225 333,506 372,584 320,663	377,076 586,786 580,127 656,045 569,902	0 0 11,801 63,112 74,187	0 0 21,769 116,434 136,867	0 0 33,570 179,546 211,054
1971 1972 1973 1974 1975	45,579 37,895 32,993 46,498 37,707	0 0 0 0	45,579 37,895 32,993 46,498 37,707	113,071 122,407 122,738 154,434 189,176	108,346 117,483 116,785 146,929 182,087	296,004 334,366 325,727 403,081 513,823	517,421 574,256 565,250 704,444 885,086	74,011 79,195 75,714 76,531 92,605	136,541 146,107 139,685 141,190 170,845	210,552 225,302 215,399 217,721 263,450
1976 1977 1978 1979 1980	60,786 78,400 56,318 73,851 81,748	0 0 0 0	60,786 78,400 56,318 73,851 81,748	203,063 179,870 239,301 236,979 389,444	193,436 169,065 228,854 232,097 372,066	524,814 500,102 647,829 666,729 1,010,540	921,313 849,037 1,115,984 1,135,805 1,772,050	94,933 102,946 104,061 100,743 125,028	175,142 189,923 191,982 185,862 230,662	270,075 292,869 296,043 286,605 355,690
1981 1982 1983 1984 1985	100,780 191,981 80,229 106,463 215,443	0 0 0 0	100,780 191,981 80,229 106,463 215,443	316,980 389,670 438,573 591,153 679,338	301,879 372,261 429,008 565,639 659,478	833,322 1,105,688 1,269,449 1,817,435 1,849,719	1,452,181 1,867,619 2,137,030 2,974,227 3,188,535	138,616 140,827 169,841 200,527 246,353	255,727 259,809 313,339 369,949 454,491	394,343 400,636 483,180 570,476 700,844
1986	203,721	0	203,721	614,780	584,455	1,787,346	2,986,581	233,489	430,757	664,246
1987	294,183	0	294,183	683,743	648,916	1,992,359	3,325,018	229,964	462,839	692,803
1988	313,808	1	313,809	679,164	657,395	1,915,236	3,251,795	258,663	560,721	819,384
1989	402,016	683,749	1,085,765	717,747	713,206	1,899,218	3,330,171	244,430	667,802	912,232
1990	654,476	668,555	1,323,031	778,432	776,489	2,120,772	3,675,693	308,909	674,600	983,509
1991	723,361	856,833	1,580,194	538,566	520,487	1,510,267	2,569,320	300,723	670,820	971,543
1992	481,636	708,354	1,189,990	794,976	854,073	2,251,105	3,900,154	344,685	733,649	1,078,334
1993	527,038	715,841	1,242,879	1,281,153	1,261,796	3,339,577	5,882,526	388,491	738,627	1,127,118
1994	570,031	651,941	1,221,972	1,359,163	1,304,083	3,539,664	6,202,910	479,555	885,586	1,365,141
1995	538,253	657,405	1,195,658	1,225,157	1,180,568	3,199,223	5,604,948	472,676	871,643	1,344,319
1996	628,847	920,706	1,549,553	1,151,608	1,113,547	2,984,310	5,249,465	591,505	1,090,833	1,682,338
1997	829,789	1,188,896	2,018,685	1,251,294	1,248,675	3,481,831	5,981,800	997,032	1,876,033	2,873,065
1998	709,403	1,228,743	1,938,146	1,255,438	1,220,943	3,408,993	5,885,374	836,629	1,555,740	2,392,369
1999	720,601	1,246,215	1,966,816	1,299,323	1,263,484	3,527,844	6,090,651	835,043	1,543,938	2,378,981
2000	704,042	1,217,616	1,921,658	1,269,251	1,234,013	3,390,040	5,893,304	815,018	1,506,182	2,321,200
2001	703,658	1,216,748	1,920,406	1,268,955	1,233,737	3,389,367	5,892,059	814,480	1,505,021	2,319,501
2002	704,852	1,219,444	1,924,296	1,269,911	1,234,625	3,391,542	5,896,078	816,195	1,508,738	2,324,933
2003	704,785	1,219,293	1,924,078	1,269,853	1,234,571	3,391,412	5,895,836	816,100	1,508,532	2,324,632
2004	705,062	1,219,918	1,924,980	1,270,093	1,234,794	3,391,958	5,896,845	816,498	1,509,395	2,325,893
2005	704,450	1,218,535	1,922,985	1,269,563	1,234,302	3,390,749	5,894,614	815,615	1,507,481	2,323,096
2006	704,538	1,218,733	1,923,271	1,269,639	1,234,373	3,390,919	5,894,931	815,741	1,507,754	2,323,495
2007	704,443	1,218,519	1,922,962	1,269,557	1,234,296	3,390,733	5,894,586	815,603	1,507,458	2,323,061
2008	704,552	1,218,765	1,923,317	1,269,650	1,234,382	3,390,948	5,894,980	815,760	1,507,797	2,323,557
2009	704,561	1,218,783	1,923,344	1,269,658	1,234,390	3,390,965	5,895,013	815,772	1,507,820	2,323,592
2010	704,556	1,218,774	1,923,330	1,269,653	1,234,387	3,390,955	5,894,995	815,767	1,507,810	2,323,577
2011	704,563	1,218,787	1,923,350	1,269,659	1,234,390	3,390,969	5,895,018	815,774	1,507,825	2,323,599
2012	704,571	1,218,810	1,923,381	1,269,655	1,234,387	3,390,956	5,894,998	815,791	1,507,865	2,323,656
2013	704,961	1,219,690	1,924,651	1,269,993	1,234,700	3,391,726	5,896,419	816,350	1,509,082	2,325,432
2014	705,400	1,220,684	1,926,084	1,270,363	1,235,044	3,392,572	5,897,979	816,966	1,510,416	2,327,382
2015	705,496	1,220,904	1,926,400	1,270,457	1,235,130	3,392,784	5,898,371	817,122	1,510,759	2,327,881
2016	705,472	1,220,848	1,926,320	1,270,435	1,235,111	3,392,736	5,898,282	817,089	1,510,681	2,327,770
2017	705,493	1,220,893	1,926,386	1,270,453	1,235,127	3,392,774	5,898,354	817,116	1,510,741	2,327,857
2018	705,480	1,220,865	1,926,345	1,270,442	1,235,117	3,392,750	5,898,309	817,099	1,510,702	2,327,801
2019	705,479	1,220,862	1,926,341	1,270,440	1,235,117	3,392,745	5,898,302	817,097	1,510,695	2,327,792
2020	705,329	1,220,519	1,925,848	1,270,310	1,234,994	3,392,449	5,897,753	816,879	1,510,228	2,327,107
2021	705,317	1,220,494	1,925,811	1,270,300	1,234,984	3,392,424	5,897,708	816,862	1,510,185	2,327,047
2022	705,309	1,220,475	1,925,784	1,270,293	1,234,977	3,392,408	5,897,678	816,852	1,510,159	2,327,011
2023	705,358	1,220,586	1,925,944	1,270,335	1,235,018	3,392,507	5,897,860	816,921	1,510,317	2,327,238
2024	705,306	1,220,466	1,925,772	1,270,289	1,234,975	3,392,401	5,897,665	816,845	1,510,152	2,326,997
2025	705,346	1,220,557	1,925,903	1,270,324	1,235,007	3,392,481	5,897,812	816,902	1,510,278	2,327,180
2026	705,320	1,220,497	1,925,817	1,270,301	1,234,985	3,392,428	5,897,714	816,864	1,510,194	2,327,058
2027	705,249	1,220,341	1,925,590	1,270,241	1,234,931	3,392,292	5,897,464	816,765	1,509,979	2,326,744
2028	705,245	1,220,331	1,925,576	1,270,238	1,234,926	3,392,284	5,897,448	816,760	1,509,966	2,326,726
2029	705,288	1,220,425	1,925,713	1,270,273	1,234,959	3,392,366	5,897,598	816,821	1,510,096	2,326,917
2030	705,157	1,220,132	1,925,289	1,270,161	1,234,855	3,392,111	5,897,127	816,631	1,509,689	2,326,320
2031	705,191	1,220,207	1,925,398	1,270,190	1,234,883	3,392,175	5,897,248	816,681	1,509,793	2,326,474
2032	705,223	1,220,279	1,925,502	1,270,218	1,234,908	3,392,238	5,897,364	816,725	1,509,890	2,326,615
2033	705,183	1,220,189	1,925,372	1,270,183	1,234,877	3,392,161	5,897,221	816,669	1,509,769	2,326,438
2034	705,216	1,220,265	1,925,481	1,270,213	1,234,903	3,392,226	5,897,342	816,718	1,509,874	2,326,592
2035	705,192	1,220,209	1,925,401	1,270,191	1,234,884	3,392,178	5,897,253	816,682	1,509,797	2,326,479
Total 3	34,400,354	53,440,682	87,841,036	64,494,015	62,733,488	173,113,632	300,341,135	37,884,355	70,733,032	108,617,387

## TABLE B-16A Minimum OMP&R Component of Transportation Charge for Each Contractor

(Dollars) Sheet 2 of 4

				San	Joaquin Valley	Area			Sheet 2 of 4
		Empire	Future	Kern County		71100		Tulare Lake	
Calendar Year	Dudley Ridge Water District (11)	West Side Irrigation District (12)	Contractor San Joaquin Valley (13)	Municipal and Industrial (14)	Agricultural	County of Kings (16)	Oak Flat Water District (17)	Basin Water Storage District (18)	Total (19)
1961 1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1966	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0
1968	37,806	1,963	5,639	60,702	678,085	2,007	2,073	77,592	865,867
1969	45,479	2,237	30,159	80,553	1,197,126	2,286	2,086	90,772	1,450,698
1970	46,969	2,292	35,450	96,672	1,381,493	2,345	2,158	93,407	1,660,786
1971	47,997	2,315	35,365	106,654	1,643,161	2,366	2,288	94,874	1,935,020
1972	49,867	2,414	37,845	122,312	1,729,170	2,470	2,254	98,776	2,045,108
1973	50,005	2,386	36,180	125,553	1,719,871	2,439	2,310	98,329	2,037,073
1974	52,816	2,557	36,571	135,661	1,823,063	2,615	2,529	104,610	2,160,422
1975	66,962	3,242	44,250	162,739	2,235,242	3,317	3,191	132,663	2,651,606
1976	66,504	3,327	45,365	159,304	2,215,996	3,404	2,919	133,940	2,630,759
1977	75,596	3,810	49,192	189,661	2,522,288	3,900	3,708	152,836	3,000,991
1978	70,688	3,504	49,725	174,899	2,427,160	3,583	3,644	141,673	2,874,876
1979	68,873	3,437	48,140	173,668	2,378,175	3,514	3,492	138,484	2,817,783
1980	95,811	4,719	59,744	235,566	3,147,017	4,825	4,774	191,405	3,743,861
1981	118,526	5,968	66,237	266,278	3,439,544	6,103	5,191	239,480	4,147,327
1982	134,057	6,708	67,294	311,833	3,851,091	6,861	6,380	270,007	4,654,231
1983	184,961	9,245	81,158	426,595	5,034,410	9,454	8,497	372,305	6,126,625
1984	194,215	9,655	95,821	471,923	5,638,818	9,873	8,724	389,850	6,818,879
1985	213,925	10,594	117,719	516,100	6,348,318	10,834	10,004	428,596	7,656,090
1986	212,552	10,567	111,572	542,557	6,495,091	10,805	10,721	426,663	7,820,528
1987	204,896	10,250	109,887	531,401	6,373,936	10,482	10,536	412,569	7,663,957
1988	204,501	10,264	123,599	518,723	6,415,634	10,496	10,377	412,483	7,706,077
1989	224,564	11,296	116,801	565,184	6,763,613	11,553	11,125	453,471	8,157,607
1990	269,422	13,580	147,612	659,940	8,069,056	13,887	13,126	544,592	9,731,215
1991	272,908	13,707	143,700	657,490	8,052,732	14,019	13,062	550,646	9,718,264
1992	316,559	15,962	161,734	761,166	9,078,203	16,326	18,176	640,022	11,008,148
1993	360,968	18,046	185,640	833,681	10,403,768	18,455	19,610	726,629	12,566,797
1994	304,331	15,239	223,708	730,093	9,687,922	15,588	15,974	613,121	11,605,976
1995	388,414	19,556	218,625	887,179	11,052,377	20,004	21,016	784,706	13,391,877
1996	386,857	19,556	274,765	903,688	11,958,193	20,001	21,178	783,124	14,367,362
1997	425,358	21,295	282,784	1,022,777	13,158,012	21,781	22,543	856,864	15,811,414
1998	422,681	21,096	281,328	1,006,456	12,200,800	21,580	23,154	850,201	14,827,296
1999	413,728	20,595	286,722	1,000,101	12,182,328	21,067	23,406	831,064	14,779,011
2000	390,665	19,418	277,898	936,353	11,527,002	19,864	22,579	784,164	13,977,943
2001	390,415	19,407	277,787	935,765	11,520,218	19,851	22,571	783,663	13,969,677
2002	391,263	19,449	278,156	937,784	11,543,264	19,893	22,596	785,350	13,997,755
2003	391,214	19,446	278,133	937,670	11,541,965	19,892	22,594	785,256	13,996,170
2004	391,414	19,455	278,222	938,143	11,547,352	19,901	22,599	785,649	14,002,735
2005	390,974	19,435	278,030	937,100	11,535,426	19,878	22,587	784,776	13,988,206
2006	391,036	19,438	278,059	937,246	11,537,121	19,882	22,590	784,901	13,990,273
2007	390,970	19,434	278,029	937,083	11,535,279	19,878	22,587	784,766	13,988,026
2008	391,047	19,438	278,061	937,267	11,537,389	19,882	22,590	784,920	13,990,594
2009	391,053	19,438	278,064	937,285	11,537,553	19,882	22,590	784,932	13,990,797
2010	391,049	19,438	278,063	937,274	11,537,464	19,882	22,590	784,927	13,990,687
2011	391,053	19,438	278,066	937,286	11,537,581	19,882	22,590	784,934	13,990,830
2012	391,061	19,439	278,067	937,303	11,537,767	19,882	22,590	784,949	13,991,058
2013	391,341	19,452	278,186	937,968	11,545,353	19,898	22,598	785,503	14,000,299
2014	391,628	19,467	278,316	938,640	11,553,125	19,910	22,606	786,080	14,009,772
2015	391,725	19,470	278,353	938,883	11,555,794	19,916	22,609	786,267	14,013,017
2016	391,706	19,470	278,344	938,839	11,555,325	19,916	22,608	786,233	14,012,441
2017	391,720	19,470	278,352	938,876	11,555,705	19,916	22,609	786,260	14,012,908
2018	391,711	19,470	278,347	938,853	11,555,460	19,916	22,609	786,244	14,012,610
2019	391,710	19,470	278,345	938,851	11,555,428	19,916	22,609	786,241	14,012,570
2020	391,603	19,465	278,300	938,591	11,552,488	19,909	22,605	786,025	14,008,986
2021	391,592	19,465	278,297	938,571	11,552,252	19,908	22,605	786,008	14,008,698
2022	391,587	19,465	278,295	938,560	11,552,098	19,908	22,605	785,997	14,008,515
2023	391,623	19,467	278,310	938,644	11,553,063	19,910	22,606	786,068	14,009,691
2024	391,585	19,465	278,294	938,551	11,552,027	19,908	22,604	785,993	14,008,427
2025	391,612	19,467	278,306	938,620	11,552,813	19,910	22,606	786,051	14,009,385
2026	391,593	19,465	278,297	938,575	11,552,294	19,908	22,605	786,011	14,008,748
2027	391,546	19,463	278,274	938,458	11,550,952	19,907	22,604	785,912	14,007,116
2028	391,542	19,462	278,274	938,448	11,550,863	19,907	22,604	785,905	14,007,005
2029	391,572	19,464	278,288	938,520	11,551,672	19,908	22,604	785,967	14,007,995
2030	391,480	19,460	278,248	938,301	11,549,143	19,904	22,602	785,781	14,004,919
2031	391,502	19,460	278,257	938,356	11,549,791	19,905	22,602	785,828	14,005,701
2032	391,526	19,462	278,266	938,410	11,550,413	19,907	22,603	785,873	14,006,460
2033	391,497	19,460	278,254	938,343	11,549,641	19,905	22,602	785,817	14,005,519
2034	391,522	19,462	278,264	938,400	11,550,297	19,906	22,603	785,865	14,006,319
2035	391,502	19,460	278,258	938,358	11,549,820	19,905	22,602	785,831	14,005,736
Total	20,118,435	1,001,736	13,625,691	48,207,284	596,972,891	1,024,592	1,123,789	40,416,701	722,491,119

#### TABLE B-16A

### Minimum OMP&R Component of Transportation Charge for Each Contractor

(Dollars)

Sheet 3 of 4

					Southern Cal	ifornia Area				Sheet 3 of 4
Calendar Year	Antelope Valley-East Kern Water Agency (20)	Castaic Lake Water Agency (21)	Coachella Valley Water District (22)	Crestline- Lake Arrowhead Water Agency (23)	Desert Water Agency (24)	Littlerock Creek Irrigation District (25)	Mojave Water Agency (26)	Palmdale Water District (27)	San Bernardino Valley Municipal Water District (28)	San Gabriel Valley Municipal Water District (29)
1961 1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1966	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	0
1968	65,073	28,084	11,697	2,958	19,290	1,088	24,380	8,171	52,314	14,399
1969	86,340	70,345	15,522	3,924	25,595	1,444	32,346	10,843	69,418	19,106
1970	107,806	84,580	19,391	4,902	31,979	1,802	40,392	13,540	86,726	23,866
1971	178,822	105,978	32,230	8,152	53,149	2,991	66,998	22,459	144,137	39,636
1972	363,554	202,628	106,741	30,966	176,039	6,603	213,029	48,104	548,122	144,113
1973	404,662	222,767	121,341	34,673	200,118	7,347	243,320	53,976	724,532	190,155
1974	434,864	235,526	130,629	37,060	215,431	7,678	262,736	56,382	786,108	207,020
1975	504,790	289,504	151,033	43,179	249,085	9,082	303,109	65,579	905,424	238,842
1976	559,011	262,418	160,688	44,454	265,002	10,030	325,512	73,253	964,525	256,572
1977	675,504	335,750	184,810	47,744	304,794	11,886	381,160	87,354	1,069,446	289,792
1978	600,343	376,950	187,027	54,153	308,449	10,711	373,191	78,304	1,148,279	300,751
1979	661,092	349,059	196,257	52,209	323,665	12,124	401,451	87,121	1,125,411	302,497
1980	857,480	415,662	252,944	71,884	417,161	15,424	508,078	112,785	1,517,632	401,010
1981	999,506	510,618	284,443	73,377	469,099	18,014	586,981	131,748	1,544,896	419,621
1982	1,128,580	558,180	321,003	89,580	529,399	20,192	649,333	148,013	1,870,901	497,958
1983	1,745,283	818,183	450,112	119,269	742,317	30,650	922,244	225,836	2,373,407	639,788
1984	2,105,373	943,142	548,750	150,200	905,005	36,805	1,112,077	271,143	3,018,507	803,408
1985	2,193,509	1,071,156	591,271	159,502	975,118	39,566	1,204,987	281,715	3,251,717	869,300
1986	2,325,017	1,108,265	621,135	163,349	1,024,374	40,270	1,273,784	297,638	3,330,403	896,306
1987	2,324,485	1,017,975	619,202	164,974	1,021,190	41,072	1,265,202	302,588	3,361,409	903,119
1988	2,319,765	1,049,326	652,965	176,621	1,076,864	40,878	1,329,199	300,497	3,604,704	965,596
1989	2,284,744	1,090,868	614,316	170,264	1,013,128	39,574	1,243,049	293,353	3,506,811	934,376
1990	2,606,404	1,262,902	702,152	199,555	1,157,996	44,973	1,410,632	332,339	4,055,311	1,070,451
1991	2,715,328	1,194,164	758,879	209,339	1,251,549	48,566	1,536,030	355,386	4,325,318	1,144,179
1992	2,768,418	1,571,171	749,058	198,084	1,235,345	49,608	1,535,934	361,191	4,128,546	1,114,488
1993	3,111,800	1,690,510	851,817	234,796	1,404,820	56,156	1,725,468	411,774	5,039,477	1,342,791
1994	2,799,274	1,595,748	809,869	228,934	1,335,641	50,852	1,664,662	372,915	5,080,578	1,344,589
1995	3,116,362	1,729,866	863,847	236,278	1,424,655	58,681	1,796,345	444,176	5,122,611	1,351,263
1996	3,116,574	1,928,759	870,046	226,759	1,434,872	57,364	1,834,754	431,014	4,892,832	1,308,475
1997	3,812,996	2,135,337	1,035,544	323,328	1,707,842	69,379	2,064,904	519,786	6,566,869	1,688,393
1998	3,638,520	2,087,259	951,619	268,832	1,569,415	65,276	3,132,586	479,277	5,529,367	1,474,192
1999	3,663,579	2,036,691	948,097	247,235	1,563,591	65,910	3,184,660	483,277	5,156,489	1,402,006
2000	3,488,933	2,071,043	933,764	272,267	1,539,975	62,594	3,044,732	458,583	5,574,031	1,467,881
2001	3,485,983	2,030,763	911,911	246,836	1,503,912	62,523	3,041,045	458,116	5,121,838	1,379,170
2002	3,495,344	1,998,124	926,834	261,141	1,528,541	62,738	3,052,535	459,588	5,376,744	1,430,441
2003	3,494,815	2,010,005	934,433	270,649	1,541,080	62,728	3,051,884	459,503	5,545,622	1,463,300
2004	3,497,009	1,994,665	909,484	239,252	1,499,916	62,779	3,054,581	459,848	4,987,789	1,354,829
2005	3,492,124	2,010,647	928,561	264,606	1,531,387	62,665	3,048,567	459,079	5,438,089	1,441,877
2006	3,492,824	2,008,854	934,572	271,655	1,541,311	62,683	3,049,429	459,190	5,563,481	1,466,455
2007	3,492,058	1,990,024	913,229	245,909	1,506,095	62,664	3,048,478	459,070	5,105,794	1,377,040
2008	3,492,928	2,014,484	912,924	245,172	1,505,589	62,685	3,049,553	459,207	5,092,735	1,374,632
2009	3,492,999	2,008,235	929,492	265,375	1,532,924	62,686	3,049,648	459,219	5,451,813	1,444,698
2010	3,492,956	2,002,441	917,781	251,090	1,513,601	62,685	3,049,587	459,211	5,197,961	1,395,164
2011	3,493,000	2,008,469	920,732	254,677	1,518,473	62,686	3,049,646	459,218	5,261,677	1,407,604
2012	3,493,116	2,006,208	922,983	257,366	1,522,186	62,689	3,049,802	459,236	5,309,525	1,416,961
2013	3,496,227	2,005,183	938,694	275,245	1,548,104	62,758	3,053,637	459,726	5,627,461	1,479,499
2014	3,499,200	2,006,012	909,175	238,019	1,499,407	62,827	3,057,113	460,187	4,966,088	1,350,940
2015	3,500,515	2,014,615	948,383	285,267	1,564,084	62,856	3,058,918	460,402	5,805,890	1,515,019
2016	3,500,318	2,013,709	913,490	242,730	1,506,517	62,851	3,058,667	460,369	5,049,931	1,367,505
2017	3,500,484	2,012,671	930,229	263,107	1,534,134	62,855	3,058,879	460,397	5,412,040	1,438,180
2018	3,500,372	2,008,138	915,132	244,716	1,509,229	62,853	3,058,738	460,378	5,085,212	1,374,399
2019	3,500,367	2,012,139	932,774	266,266	1,538,337	62,853	3,058,735	460,377	5,468,203	1,449,116
2020	3,499,137	2,009,198	931,481	265,214	1,536,204	62,827	3,057,214	460,185	5,449,326	1,445,232
2021	3,499,055	2,010,589	915,436	245,651	1,509,735	62,826	3,057,113	460,174	5,101,644	1,377,384
2022	3,499,001	2,009,848	926,088	258,679	1,527,308	62,826	3,057,049	460,165	5,333,207	1,422,554
2023	3,499,396	2,008,321	932,745	266,646	1,538,288	62,833	3,057,540	460,225	5,474,783	1,450,236
2024	3,498,969	2,010,702	920,245	251,556	1,517,667	62,825	3,057,013	460,159	5,206,622	1,397,854
2025	3,499,290	2,014,191	923,920	255,908	1,523,729	62,831	3,057,412	460,208	5,283,986	1,412,998
2026	3,499,077	2,011,588	928,530	261,631	1,531,342	62,826	3,057,147	460,177	5,385,683	1,432,802
2027	3,498,514	2,006,275	923,859	256,161	1,523,629	62,813	3,056,450	460,089	5,288,459	1,413,742
2028	3,498,480	2,008,863	930,899	264,777	1,535,248	62,813	3,056,404	460,083	5,441,616	1,443,611
2029	3,498,825	2,011,334	932,641	266,760	1,538,118	62,822	3,056,832	460,135	5,476,805	1,450,539
2030	3,497,775	1,991,945	915,716	246,529	1,510,198	62,797	3,055,537	459,971	5,117,236	1,380,213
2031	3,498,038	2,020,033	930,756	264,787	1,535,011	62,801	3,055,861	460,012	5,441,779	1,443,576
2032	3,498,308	2,015,858	927,438	260,619	1,529,537	62,809	3,056,197	460,053	5,367,683	1,429,163
2033	3,497,992	2,009,446	917,969	249,181	1,513,910	62,800	3,055,813	460,003	5,164,392	1,389,451
2034	3,498,262	2,010,575	934,813	269,641	1,541,696	62,808	3,056,136	460,045	5,528,082	1,460,449
2035	3,498,062	1,984,256	931,815	266,070	1,536,759	62,801	3,055,890	460,015	5,464,567	1,448,026
Total	180,154,611	100,738,822	48,123,363	13,387,689	79,365,158	3,231,712	142,598,315	23,714,140	276,870,021	73,790,598

#### TABLE B-16A

### Minimum OMP&R Component of Transportation Charge for Each Contractor

(Dollars)

	,	Cavithaum O-116-	A 400 (5 1)	al)	(Dollai		au Divar A		ı	Sheet 4 of 4
		Southern California	•	a)		Feath	er River Area			
Calendar Year	San Gorgonio Pass Water Agency (30	Metropolitan Water District of Southern California (31)	Ventura County Flood Control District (32)	Total (33)	City of Yuba City (34)	County of Butte (35)	Plumas County FC&WCD (36)	Total (37)	South Bay Area Future Contractor (38)	Grand Total (39)
	,	. ,	• • •	. ,	` ′		, ,	. ,	, ,	, ,
1961 1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 12,626 13,938 28,937	0 18,567 168,358 184,729 378,874
1966 1967 1968 1969 1970	0 0 8,819 11,706 14,621	0 0 972,744 1,295,613 1,624,573	0 0 9,504 12,610 15,745	0 0 1,218,521 1,654,812 2,069,923	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	31,321 47,719 46,945 52,963 69,745	408,397 634,505 2,745,160 4,074,939 4,676,282
1971 1972 1973 1974 1975	24,302 89,132 117,781 128,166 147,900	2,716,582 8,038,457 9,890,314 11,581,499 13,584,540	26,120 68,368 78,312 83,451 101,892	3,421,556 10,035,856 12,289,298 14,166,550 16,593,959	0 0 0 0	0 0 0 0	54 40 1 143 1,069	54 40 1 143 1,069	55,532 80,412 54,219 76,783 84,546	6,185,714 12,998,869 15,194,233 17,372,561 20,517,423
1976 1977 1978 1979 1980	158,663 178,774 186,386 186,678 248,269	12,862,497 16,203,703 17,811,759 16,413,707 20,915,931	94,799 121,966 132,438 126,751 154,005	16,037,424 19,892,683 21,568,741 20,238,022 25,888,265	0 0 0 0	0 0 0 0	139 892 39 3,235 416	139 892 39 3,235 416	106,717 98,617 100,785 119,347 178,731	20,027,213 24,213,489 26,012,786 24,674,648 32,020,761
1981 1982 1983 1984 1985	258,678 308,007 394,588 496,822 536,994	23,692,307 28,020,865 38,410,167 45,571,127 50,648,854	186,308 209,252 321,406 381,823 422,206	29,175,596 34,351,263 47,193,250 56,344,182 62,245,895	0 0 0 0	0 0 0 0	3,847 10,956 (422) 643 2,599	3,847 10,956 (422) 643 2,599	185,212 181,897 220,815 225,920 341,950	35,459,286 41,658,583 56,240,707 67,040,790 74,351,356
1986 1987 1988 1989 1990	553,053 557,712 596,634 578,002 662,816	53,071,503 49,959,317 51,578,544 52,740,905 60,489,355	444,341 403,724 409,240 431,901 489,265	65,149,438 61,941,969 64,100,833 64,941,291 74,484,151	0 0 0 0	0 0 0 0	2,595 2,595 2,600 2,672 2,687	2,595 2,595 2,600 2,672 2,687	279,770 343,864 366,222 422,636 472,467	77,106,879 74,264,389 76,560,720 78,852,374 90,672,753
1991 1992 1993 1994 1995	707,834 687,883 831,100 831,983 834,735	60,494,116 67,235,530 68,831,371 65,051,144 69,949,213	466,751 499,660 538,479 469,320 527,078	75,207,439 82,134,916 86,070,359 81,635,509 87,455,110	0 0 0 0	0 0 0 0	2,730 2,774 2,529 3,058 3,210	2,730 2,774 2,529 3,058 3,210	212,666 442,966 600,080 606,539 532,547	90,262,156 99,757,282 107,492,288 102,641,105 109,527,669
1996 1997 1998 1999 2000	806,451 1,047,055 911,114 863,863 909,511	73,455,431 86,322,368 80,038,717 76,465,036 79,633,100	562,416 636,424 633,065 615,964 622,357	90,925,747 107,930,225 100,779,239 96,696,398 100,078,771	0 0 0 0	0 0 0 0	3,370 3,437 3,506 3,576 3,576	3,370 3,437 3,506 3,576 3,576	577,639 634,529 633,880 666,009 653,840	114,355,474 135,253,155 126,459,810 122,581,442 124,850,292
2001 2002 2003 2004 2005	851,450 884,826 906,375 835,248 892,395	76,611,193 76,791,543 77,598,479 75,352,079 76,991,676	610,470 601,044 604,524 600,055 604,666	96,315,210 96,869,443 97,943,397 94,847,534 97,166,339	0 0 0 0	0 0 0 0	3,576 3,576 3,576 3,576 3,576	3,576 3,576 3,576 3,576 3,576	653,532 654,568 654,498 654,785 654,148	121,073,961 121,670,649 122,742,187 119,656,348 121,952,964
2006 2007 2008 2009 2010	908,487 849,909 848,316 894,224 861,768	77,615,750 75,372,195 76,301,180 76,981,869 76,123,364	604,154 598,603 605,809 603,973 602,272	97,978,845 95,021,068 95,965,214 97,177,155 95,929,881	0 0 0 0	0 0 0 0	3,576 3,576 3,576 3,576 3,576	3,576 3,576 3,576 3,576 3,576	654,240 654,141 654,253 654,262 654,259	122,768,631 119,807,420 120,755,491 121,967,739 120,720,305
2011 2012 2013 2014 2015	869,918 876,046 916,956 832,652 940,134	76,589,969 76,697,037 77,648,803 75,762,802 78,087,278	604,043 603,380 603,135 603,426 605,982	96,500,112 96,676,535 98,115,428 95,247,848 98,849,343	0 0 0 0	0 0 0 0	3,576 3,576 3,576 3,576 3,576	3,576 3,576 3,576 3,576 3,576	654,263 654,270 654,675 655,114 655,232	121,290,748 121,467,474 122,920,480 120,067,755 123,673,820
2016 2017 2018 2019 2020	843,472 889,778 847,988 896,947 894,437	76,418,622 77,110,534 76,253,957 77,408,814 77,035,488	605,713 605,412 604,075 605,251 604,366	96,043,894 97,278,700 95,925,187 97,660,179 97,250,309	0 0 0 0	0 0 0 0	3,576 3,576 3,576 3,576 3,576	3,576 3,576 3,576 3,576 3,576	655,208 655,228 655,215 655,213 655,056	120,867,491 122,103,009 120,749,043 122,483,973 122,068,635
2021 2022 2023 2024 2025	849,980 879,578 897,711 863,391 873,312	76,440,420 76,631,549 77,440,001 76,397,273 77,049,773	604,774 604,557 604,112 604,805 605,835	96,134,781 96,672,409 97,692,837 96,249,081 97,023,393	0 0 0 0	0 0 0 0	3,576 3,576 3,576 3,576 3,576	3,576 3,576 3,576 3,576 3,576	655,043 655,034 655,086 655,031 655,074	120,952,664 121,490,007 122,512,232 121,066,549 121,842,323
2026 2027 2028 2029 2030	886,295 873,812 893,390 897,917 851,863	77,027,431 76,615,682 76,948,923 77,705,441 75,819,992	605,067 603,497 604,256 604,988 599,269	97,149,596 96,582,982 97,149,363 97,963,157 95,509,041	0 0 0 0	0 0 0 0	3,576 3,576 3,576 3,576 3,576	3,576 3,576 3,576 3,576 3,576	655,045 654,973 654,968 655,012 654,877	121,967,554 121,398,445 121,964,662 122,779,968 120,321,149
2031 2032 2033 2034 2035	893,373 883,922 857,909 904,426 896,287	77,145,886 77,271,198 76,392,059 77,591,460 76,711,740	607,531 606,310 604,417 604,753 597,014	97,359,444 97,369,095 96,175,342 97,923,146 96,913,302	0 0 0 0	0 0 0 0	3,576 3,576 3,576 3,576 3,576	3,576 3,576 3,576 3,576 3,576	654,911 654,945 654,903 654,938 654,913	122,172,752 122,183,557 120,988,371 122,737,394 121,726,660
Total	45,620,524	4,003,512,349	31,438,479	5,022,545,781	0	0	193,726	193,726	32,778,244	6,274,808,428

#### TABLE B-16B

# Minimum OMP&R Component of Transportation Charge for Each Contractor for Off-Aqueduct Power Facilities (Dollars)

Page 1 of 4

	٨	lorth Bay Area			South B	Bay Area		Се	entral Coastal Ar	ea
Calendar	Napa County FC&WCD	Solano County Water Agency	Total	Alameda County FC&WCD, Zone 7	Alameda County Water District	District	Total	San Luis Obispo County FC&WCD	Santa Barbara County FC&WCD	Total
Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1971 1972 1973 1974 1975	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1976 1977 1978 1979 1980	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1981 1982 1983 1984 1985	0 0 10,070 29,957 54,709	0 0 0 0	0 0 10,070 29,957 54,709	0 0 47,473 157,280 458,427	0 0 31,446 77,388 582,679	0 0 863,937 2,040,188 2,696,449	0 942,856 2,274,856 3,737,555	0 0 0 0	0 0 0 0	0 0 0 0
1986 1987 1988 1989 1990	45,886 90,385 115,970 64,584 77,126	0 0 114,196 138,240 138,805	45,886 90,385 230,166 202,824 215,931	312,937 622,029 616,865 407,353 535,269	365,147 674,111 804,606 396,069 514,372	2,595,766 2,306,079 2,116,236 1,389,347 1,490,250	3,273,850 3,602,219 3,537,707 2,192,769 2,539,891	0 0 0 0	0 0 0 0	0 0 0 0
1991 1992 1993 1994 1995	35,178 74,573 89,213 111,942 96,842	245,181 230,716 247,977 229,598 235,606	280,359 305,289 337,190 341,540 332,448	355,578 405,244 841,383 501,812 833,226	477,883 529,119 256,930 559,683 492,579	1,065,488 1,183,466 1,552,562 1,395,238 796,524	1,898,949 2,117,829 2,650,875 2,456,733 2,122,329	0 0 0 0	165,930 0 0 0 0	165,930 0 0 0 0
1996 1997 1998 1999 2000	63,698 122,765 116,552 107,397 109,985	205,414 198,974 206,063 184,769 180,845	269,112 321,739 322,615 292,166 290,830	367,297 556,803 483,985 625,314 608,180	304,845 782,628 519,893 457,635 460,102	1,189,291 976,997 1,561,241 1,359,378 1,322,130	1,861,433 2,316,428 2,565,119 2,442,327 2,390,412	711 119,277 220,383 134,215 132,712	105 767,520 1,478,038 1,667,093 1,621,414	816 886,797 1,698,421 1,801,308 1,754,126
2001 2002 2003 2004 2005	117,081 95,549 87,960 91,539 103,974	186,971 142,859 128,169 130,259 142,025	304,052 238,408 216,129 221,798 245,999	627,072 459,259 405,215 405,272 443,063	474,394 419,324 369,979 370,032 404,536	1,363,201 998,391 880,902 881,027 963,180	2,464,667 1,876,974 1,656,096 1,656,331 1,810,779	138,929 672,949 593,759 593,843 649,216	1,671,782 1,224,392 1,080,308 1,080,461 1,181,211	1,810,711 1,897,341 1,674,067 1,674,304 1,830,427
2006 2007 2008 2009 2010	106,927 110,068 136,156 140,318 144,526	142,627 142,159 169,487 169,499 169,569	249,554 252,227 305,643 309,817 314,095	443,181 441,441 525,961 525,660 525,539	404,644 403,054 480,225 479,950 479,840	963,438 959,655 1,143,394 1,142,737 1,142,477	1,811,263 1,804,150 2,149,580 2,148,347 2,147,856	649,390 646,840 770,687 770,245 770,068	1,181,526 1,176,886 1,402,218 1,401,414 1,401,093	1,830,916 1,823,726 2,172,905 2,171,659 2,171,161
2011 2012 2013 2014 2015	149,506 154,129 72,156 32,555 14,259	169,644 170,178 77,205 33,789 14,370	319,150 324,307 149,361 66,344 28,629	525,432 526,748 238,816 104,453 44,394	479,743 480,943 218,049 95,369 40,533	1,142,244 1,145,102 519,165 227,071 96,507	2,147,419 2,152,793 976,030 426,893 181,434	769,912 771,839 349,936 153,053 65,050	1,400,809 1,404,313 636,686 278,471 118,353	2,170,721 2,176,152 986,622 431,524 183,403
2016 2017 2018 2019 2020	7,282 3,398 3,485 3,585 3,687	7,159 3,254 3,253 3,263 3,275	14,441 6,652 6,738 6,848 6,962	22,067 10,030 10,026 10,059 10,095	20,148 9,158 9,155 9,184 9,218	47,971 21,805 21,796 21,866 21,946	90,186 40,993 40,977 41,109 41,259	32,334 14,697 14,692 14,739 14,793	58,831 26,741 26,730 26,817 26,914	91,165 41,438 41,422 41,556 41,707
2021 2022 2023 2024 2025	3,696 3,705 3,715 7,661 0	3,269 3,277 3,288 6,778 0	6,965 6,982 7,003 14,439 0	10,079 10,104 10,132 20,893 0	9,203 9,224 9,252 19,076 0	21,911 21,964 22,027 45,420 0	41,193 41,292 41,411 85,389 0	14,769 14,804 14,847 30,614 0	26,870 26,936 27,014 55,701 0	41,639 41,740 41,861 86,315 0
2026 2027 2028 2029 2030	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
2031 2032 2033 2034 2035	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0 0	0 0 0 0	0 0 0 0 0
Total	3,013,749	4,582,010	7,595,759	15,091,446	13,991,348	41,715,764	70,798,558	9,139,303	22,642,577	31,781,880

TABLE B-16B

## Minimum OMP&R Component of Transportation Charge for Each Contractor for Off-Aqueduct Power Facilities (Dollars)

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	T			(Dollars)	Vallay Ares			Page 2 of 4
			Korn County		Valley Area		Tulare Lake	
Calendar Year	Dudley Ridge Water District (11)	Empire West Side Irrigation District (12)		Water Agency  Agricultural  (14)	County of Kings (15)	Oak Flat Water District (16)	Basin Water Storage District (17)	Total (18)
	, ,	· · ·			` ′			
1971 1972 1973 1974 1975	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1976 1977 1978 1979 1980	0 0 0 0 0	0 0 0 0	0 0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1981 1982 1983 1984 1985	0 0 159,191 389,518 527,952	0 0 0 0 59,324	0 0 34,366 816,103 1,053,957	0 0 2,964,185 9,095,509 11,978,046	0 0 13,174 26,774 38,810	0 0 9,673 33,576 42,297	0 0 3,733 49,601 1,253,257	0 0 3,184,322 10,411,081 14,953,643
1986 1987 1988 1989 1990	552,171 450,941 425,261 331,852 219,381	12,858 24,936 31,146 17,226 7,731	885,988 1,192,388 1,130,988 607,908 428,482	11,788,715 10,448,063 9,910,050 7,400,983 5,216,562	40,659 39,134 35,851 22,959 12,089	38,275 37,538 26,779 24,306 12,046	872,009 911,938 850,225 754,007 344,943	14,190,675 13,104,938 12,410,300 9,159,241 6,241,234
1991 1992 1993 1994 1995	13,048 244,630 471,706 262,029 626,214	3,111 13,935 25,543 15,161 16,830	570,942 706,155 1,202,455 901,463 1,486,494	146,276 5,788,599 11,405,212 6,786,208 12,489,555	0 18,587 37,276 19,257 41,276	1,354 15,716 36,803 19,061 36,378	30,685 480,903 1,159,908 567,521 1,051,178	765,416 7,268,525 14,338,903 8,570,700 15,747,925
1996 1997 1998 1999 2000	407,919 505,610 310,407 270,273 262,867	13,446 0 17,448 15,192 14,776	1,226,968 910,831 770,280 670,685 652,308	9,219,091 8,342,019 7,158,185 6,232,657 6,061,880	28,668 0 23,264 20,256 19,701	24,001 26,986 22,611 19,687 19,147	1,691,135 212,508 689,211 600,098 583,656	12,611,228 9,997,954 8,991,406 7,828,848 7,614,335
2001 2002 2003 2004 2005	271,032 198,500 175,142 175,166 191,500	15,235 11,158 9,845 9,847 10,765	672,572 557,385 491,793 491,862 537,727	6,250,184 4,420,587 3,900,383 3,900,937 4,264,686	20,314 14,877 13,126 13,128 14,352	19,743 14,459 12,758 12,759 13,949	601,786 440,740 388,875 388,930 425,196	7,850,866 5,657,706 4,991,922 4,992,629 5,458,175
2006 2007 2008 2009 2010	191,551 190,799 227,330 227,199 227,147	10,767 10,725 12,778 12,772 12,769	537,871 535,759 638,338 637,971 637,825	4,265,826 4,249,074 5,062,620 5,059,715 5,058,558	14,357 14,300 17,038 17,028 17,025	13,953 13,898 16,559 16,550 16,546	425,310 423,640 504,752 504,462 504,347	5,459,635 5,438,195 6,479,415 6,475,697 6,474,217
2011 2012 2013 2014 2015	227,101 227,670 103,221 45,146 19,187	12,766 12,797 5,802 2,537 1,079	637,696 639,292 289,841 126,770 53,878	5,057,530 5,070,186 2,298,716 1,005,403 427,307	17,021 17,064 7,736 3,384 1,438	16,543 16,584 7,518 3,288 1,398	504,244 505,506 229,186 100,240 42,603	6,472,901 6,489,099 2,942,020 1,286,768 546,890
2016 2017 2018 2019 2020	9,537 4,335 4,334 4,348 4,364	536 243 243 244 245	26,782 12,174 12,169 12,208 12,252	212,403 96,544 96,508 96,819 97,173	715 325 325 325 325 327	695 316 316 317 318	21,177 9,626 9,622 9,653 9,688	271,845 123,563 123,517 123,914 124,367
2021 2022 2023 2024 2025	4,356 4,367 4,380 9,030 0	245 246 246 508 0	12,232 12,262 12,297 25,357 0	97,015 97,249 97,531 201,104 0	327 327 328 677 0	318 318 319 658 0	9,672 9,696 9,724 20,050 0	124,165 124,465 124,825 257,384
2026 2027 2028 2029 2030	0 0 0 0 0	0 0 0 0	0 0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
2031 2032 2033 2034 2035	0 0 0 0 0	0 0 0 0	0 0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0 0	0 0 0 0
Total	9,177,712	443,061	22,873,074	203,815,853	643,599	646,314	18,205,241	255,804,854

#### TABLE B-16B

## Minimum OMP&R Component of Transportation Charge for Each Contractor for Off-Aqueduct Power Facilities

(Dollars) Page 3 of 4

					Southern Cali	fornia Area				Page 3 of 4
Calendar Year	Antelope Valley- East Kern Water Agency (19)	Castaic Lake Water Agency (20)	Coachella Valley Water District (21)	Crestline- Lake Arrowhead Water Agency (22)	Desert Water Agency (23)	Littlerock Creek Irrigation District (24)	Mojave Water Agency (25)	Palmdale Water District (26)	San Bernardino Valley Municipal Water District (27)	San Gabriel Valley Municipal Water District (28)
1971 1972 1973 1974 1975	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1976 1977 1978 1979 1980	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1981 1982 1983 1984 1985	0 0 1,083,881 2,499,848 3,775,658	0 0 411,247 1,122,640 1,572,025	0 0 565,798 1,427,428 2,032,672	0 0 35,432 102,114 170,137	0 0 894,572 2,263,172 3,230,452	0 0 1,250 77 0	0 0 0 0	0 0 0 0 131,200	0 0 233,134 502,967 884,188	0 0 28,548 693,074 601,582
1986 1987 1988 1989 1990	3,159,858 3,167,759 2,688,113 2,357,669 2,528,625	1,694,487 1,694,698 1,776,471 1,348,806 1,335,341	2,097,407 1,991,841 1,940,156 1,326,863 1,463,452	173,460 190,149 187,156 132,076 115,746	3,340,188 3,230,424 3,194,137 2,218,516 2,413,745	15,872 95,994 30,395 50,948 110,678	1,786 846 13,206	301,486 258,719 126,639 493,424 545,342	739,563 1,951,799 2,000,664 1,257,332 1,192,997	1,088,902 1,091,691 839,774 792,087 1,054,762
1991 1992 1993 1994 1995	1,048,414 2,760,199 3,559,486 3,963,982 4,324,008	531,160 1,548,472 1,332,392 1,450,328 1,901,361	1,022,405 1,124,775 2,256,338 1,345,145 2,498,461	125,256 55,985 29,498 74,879 44,237	1,686,304 1,855,065 3,721,492 2,218,411 4,120,838	65,111 22,891 60,615 88,549 43,893	473,291 1,130,876 1,101,799 1,371,116 881,146	488,207 367,996 640,919 678,876 636,540	540,119 362,232 425,969 871,358 75,278	796,531 853,047 1,406,255 1,452,741 1,397,624
1996 1997 1998 1999 2000	3,572,856 3,859,586 7,133,281 3,097,140 3,145,269	1,507,542 1,563,315 1,429,729 1,356,083 1,437,815	4,652,945 4,227,387 1,408,224 1,226,146 1,192,549	77,384 141,883 118,876 103,506 100,670	7,674,388 3,863,585 2,322,656 0	31,691 141,488 118,029 103,217 100,389	760,763 1,045,437 1,205,049 1,580,093 2,052,175	723,670 1,064,230 891,660 776,371 755,098	458,246 873,126 2,499,446 2,653,996 2,891,028	1,201,941 1,322,277 1,755,708 849,279 826,008
2001 2002 2003 2004 2005	3,399,045 4,561,628 4,024,827 4,025,398 4,400,753	1,617,565 1,544,795 1,363,007 1,363,200 1,490,314	1,229,594 900,538 794,566 794,679 868,780	103,797 226,110 199,501 199,529 218,135	0 1,485,304 1,310,518 1,310,703 1,432,922	103,508 75,807 66,886 66,896 73,134	2,382,974 1,980,406 1,747,357 1,747,605 1,910,562	778,555 570,203 503,103 503,174 550,094	3,193,751 3,999,796 3,529,110 3,529,611 3,858,735	851,668 1,122,750 990,628 990,767 1,083,153
2006 2007 2008 2009 2010	4,401,930 4,384,642 5,224,145 5,221,149 5,219,954	1,490,712 1,484,859 1,769,156 1,768,141 1,767,736	869,012 865,599 1,031,330 1,030,738 1,030,503	218,193 217,337 258,949 258,800 258,741	1,433,305 1,427,676 1,701,025 1,700,050 1,699,661	73,154 72,866 86,818 86,768 86,748	1,911,073 1,903,568 2,268,034 2,266,732 2,266,214	550,241 548,081 653,018 652,644 652,494	3,859,767 3,844,609 4,580,714 4,578,086 4,577,039	1,083,443 1,079,188 1,285,814 1,285,077 1,284,783
2011 2012 2013 2014 2015	5,218,894 5,231,953 2,372,057 1,037,481 440,941	1,767,378 1,771,800 803,297 351,342 149,324	1,030,293 1,032,872 468,282 204,816 87,049	258,689 259,336 117,578 51,425 21,856	1,699,315 1,703,567 772,361 337,813 143,574	86,730 86,948 39,420 17,241 7,328	2,265,754 2,271,423 1,029,816 450,416 191,431	652,362 653,994 296,507 129,685 55,118	4,576,109 4,587,560 2,079,903 909,700 386,632	1,284,522 1,287,737 583,832 255,354 108,528
2016 2017 2018 2019 2020	219,180 99,625 99,588 99,908 100,273	74,225 33,738 33,725 33,833 33,958	43,270 19,668 19,660 19,724 19,795	10,864 4,938 4,937 4,952 4,970	71,367 32,439 32,426 32,531 32,650	3,643 1,655 1,655 1,660 1,666	95,155 43,252 43,236 43,375 43,533	27,398 12,453 12,448 12,488 12,535	192,185 87,355 87,322 87,603 87,922	53,946 24,521 24,512 24,590 24,681
2021 2022 2023 2024 2025	100,110 100,352 100,643 207,521 0	33,903 33,984 34,083 70,277 0	19,763 19,811 19,868 40,968 0	4,962 4,974 4,989 10,287 0	32,597 32,676 32,770 67,570 0	1,664 1,667 1,672 3,449	43,462 43,568 43,694 90,094	12,514 12,544 12,580 25,940 0	87,780 87,992 88,247 181,962 0	24,640 24,699 24,771 51,077
2026 2027 2028 2029 2030	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
2031 2032 2033 2034 2035	0 0 0 0	0 0 0 0	0 0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0 0	0 0 0 0	0 0 0 0 0
Total	118,017,629	45,898,264	46,261,170	4,902,293	66,772,765 BLF B-16B	2,130,070	38,700,317	16,770,550	73,492,932	32,906,512

TABLE B-16B

Minimum OMP&R Component of Transportation Charge for Each Contractor for Off-Aqueduct Power Facilities

(Dollars)

#### TABLE B-16B

## Minimum OMP&R Component of Transportation Charge for Each Contractor for Off-Aqueduct Power Facilities

(Dollars) Page 4 of 4

	(DOIIars)  Southern California Area (continued)  Feather River Area										
Calendar Year	San Gorgonio Pass Water Agency (29)	Metropolitan Water District of Southern California (30)	Ventura County Flood Control District (31)	Total (32)	City of Yuba City (33)	County of Butte (34)	Plumas County FC&WCD (35)	Total (36)	Total State Water Project (a (37)		
1971 1972 1973 1974 1975	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0		
1976 1977 1978 1979 1980	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0 0		
1981 1982 1983 1984 1985	0 0 0 0	0 0 12,791,358 39,229,567 77,446,522	0 0 0 0	0 0 16,045,220 47,840,887 89,844,436	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 20,182,468 60,556,781 108,590,343		
1986 1987 1988 1989 1990	0 0 0 0	77,581,287 68,939,195 79,936,309 68,311,546 83,964,409	0 0 0 0 277,885	90,192,510 82,614,055 92,720,660 78,302,473 95,002,982	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	107,702,921 99,411,597 108,898,833 89,857,307 104,000,038		
1991 1992 1993 1994 1995	0 0 0 0	54,214,229 72,401,054 55,312,617 72,838,621 40,862,810	132,209 0 0 0 0	61,123,236 82,482,592 69,847,380 86,354,006 56,786,196	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	64,233,890 92,174,235 87,174,348 97,722,979 74,988,898		
1996 1997 1998 1999 2000	0 0 0 222,935 258,128	36,536,259 55,093,403 65,427,301 74,896,149 75,146,336	401 0 552,934 481,441 468,250	57,198,086 73,195,717 84,862,893 87,346,356 88,373,715	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	71,940,675 86,718,635 98,440,454 99,711,005 100,423,418		
2001 2002 2003 2004 2005	266,145 194,921 206,380 223,611 263,267	74,579,526 74,400,827 65,645,529 65,654,832 71,776,927	482,795 707,186 623,966 624,055 682,246	88,988,923 91,770,271 81,005,378 81,034,060 88,609,022	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	101,419,219 101,440,700 89,543,592 89,579,122 97,954,402		
2006 2007 2008 2009 2010	282,146 648,262 772,382 771,938 771,762	71,796,119 71,514,171 85,206,580 85,157,700 85,138,220	682,428 679,748 809,896 809,431 809,246	88,651,523 88,670,606 105,647,861 105,587,254 105,563,101	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	98,002,891 97,988,904 116,755,404 116,692,774 116,670,430		
2011 2012 2013 2014 2015	771,605 773,536 350,705 153,390 65,193	85,120,928 85,333,927 38,688,601 16,921,458 7,191,801	809,082 811,106 367,738 160,840 68,359	105,541,661 105,805,759 47,970,097 20,980,961 8,917,134	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	116,651,852 116,948,110 53,024,130 23,192,490 9,857,490		
2016 2017 2018 2019 2020	32,406 14,729 14,723 14,772 14,825	3,574,860 1,624,901 1,624,290 1,629,513 1,635,467	33,979 15,445 15,439 15,489 15,545	4,432,478 2,014,719 2,013,961 2,020,438 2,027,820	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	4,900,115 2,227,365 2,226,615 2,233,865 2,242,115		
2021 2022 2023 2024 2025	14,801 14,837 14,880 30,681 0	1,632,812 1,636,756 1,641,497 3,384,697	15,520 15,557 15,603 32,172 0	2,024,528 2,029,417 2,035,297 4,196,695 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	2,238,490 2,243,896 2,250,397 4,640,222 0		
2026 2027 2028 2029 2030	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0		
2031 2032 2033 2034 2035	0 0 0 0	0 0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0 0		
Total	7,162,960	2,113,440,911	11,215,991	2,577,672,364	0	0	0	0	2,943,653,415		

a) Costs allocated to contractors in 1989 through 1993 are reduced by credits for Off-Aqueduct Power Facility costs allocated to the pumping of non-SWP water.

TABLE-17

#### **Unit Variable OMP&R Component of Transportation Charge**

(Dollars per Acre-Foot)

Page 1 of 4

			North Bay	Aqueduct	liars per Ac	16-1 001)	South Bay	Aqueduct	California Aqueduct	
	Rea	ach 1	Read	ch 3A	Rea	ch 3B	Rea	ch 1	Rea	nch 1
	Barker Slough	Pumping Plant	Solano	mping Plant County Agency	Napa	umping Plant County VCD (a		and Del Valle Plants (b	Banks Pur	mping Plant
Calendar	Unit Rate	Cumulative Unit Rate	Unit Rate	Cumulative Unit Rate	Unit Rate	Cumulative Unit Rate	Unit Rate	Cumulative Unit Rate	Unit Rate	Cumulative Unit Rate
Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1961 1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 4.1511341 4.5639383 3.5452154 4.1911773	0 4.1511341 4.5639383 3.5452154 4.1911773	0 0 0 0	0 0 0 0
1966 1967 1968 1969 1970	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 5.7570016 3.1823595 3.7584301	0 0 5.7570016 3.1823595 3.7584301	3.5074573 3.9306767 3.3315620 3.6949019 4.4256141	3.5074573 4.1752198 4.8750942 4.8016170 5.3721490	0 0.2445431 1.5435322 1.1067151 0.9465349	0 0.2445431 1.5435322 1.1067151 0.9465349
1971 1972 1973 1974 1975	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	4.2082507 3.9577735 3.8103903 3.5878850 2.1606725	4.2082507 3.9577735 3.8103903 3.5878850 2.1606725	3.8714396 4.3250690 5.2455409 6.3321503 3.7365711	4.7522833 5.2281686 6.1841800 7.2293909 4.8327731	0.8808437 0.9030996 0.9386391 0.8972406 1.0962020	0.8808437 0.9030996 0.9386391 0.8972406 1.0962020
1976 1977 1978 1979 1980	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	2.9283909 2.7516411 3.5949619 2.4747752 2.9737588	2.9283909 2.7516411 3.5949619 2.4747752 2.9737588	4.5191527 4.7630172 5.2086183 4.9524184 4.5186576	5.7132795 6.5309908 6.8200209 7.0889234 5.8865852	1.1941268 1.7679736 1.6114026 2.1365050 1.3679276	1.1941268 1.7679736 1.6114026 2.1365050 1.3679276
1981 1982 1983 1984 1985	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	2.6487057 10.0239077 1.0209882 1.6647280 2.5219114	2.6487057 10.0239077 1.0209882 1.6647280 2.5219114	4.3834851 4.9779475 1.3127535 2.7931657 3.6942124	6.4772202 6.7284782 2.1162150 3.9861839 5.3146305	2.0937351 1.7505307 0.8034615 1.1930182 1.6204181	2.0937351 1.7505307 0.8034615 1.1930182 1.6204181
1986	0	0	0	0	4.3967036	4.3967036	7.4448499	10.7240598	3.2792099	3.2792099
1987	0	0	0	0	3.5385415	3.5385415	6.5485394	9.5078150	2.9592756	2.9592756
1988	1.1849573	1.1849573	2.0602571	3.2452144	4.4701409	5.6550982	6.2049981	8.9148887	2.7098906	2.7098906
1989	1.1263059	1.1263059	2.6374232	3.7637291	1.0635997	2.1899056	7.6128953	11.0630833	3.4501880	3.4501880
1990	2.2510452	2.2510452	4.3186176	6.5696628	6.2080692	8.4591144	11.8868255	16.0951387	4.2083132	4.2083132
1991	1.3320163	1.3320163	2.6243839	3.9564002	4.2572464	5.5892627	7.5405400	11.2389233	3.6983833	3.6983833
1992	0.7148716	0.7148716	1.4281996	2.1430712	2.3686578	3.0835294	4.1030120	6.4071722	2.3041602	2.3041602
1993	-0.3401903	-0.3401903	-0.6012024	-0.9413927	-1.0145668	-1.3547571	-1.4972587	-1.2378447	0.2594140	0.2594140
1994	1.2314330	1.2314330	1.6535539	2.8849869	4.2585395	5.4899725	7.8995108	11.1996035	3.3000927	3.3000927
1995	0.7402646	0.7402646	1.2730133	2.0132779	2.2327287	2.9729933	3.2028314	5.1382002	1.9353688	1.9353688
1996	1.6279451	1.6279451	2.6371199	4.2650650	4.5546699	6.1826150	7.6111054	10.8721730	3.2610676	3.2610676
1997	2.7337779	2.7337779	4.7752971	7.5090750	7.2382734	9.9720513	10.7288490	15.1930603	4.4642113	4.4642113
1998	2.8810447	2.8810447	5.0729275	7.9539722	7.6219611	10.5030058	11.9589836	16.5901472	4.6311636	4.6311636
1999	2.4353774	2.4353774	4.5177643	6.9531417	6.8122972	9.2476746	11.3932430	15.8345174	4.4412744	4.4412744
2000	2.7371319	2.7371319	5.0539015	7.7910334	7.6245742	10.3617061	12.7609071	17.6124680	4.8515609	4.8515609
2001	2.5504552	2.5504552	4.6924360	7.2428912	7.0939513	9.6444065	11.8514381	16.4502896	4.5988515	4.5988515
2002	3.1697762	3.1697762	6.0760498	9.2458260	8.7773705	11.9471467	14.6666649	20.2175176	5.5508527	5.5508527
2003	3.1478674	3.1478674	6.0994924	9.2473598	8.6872297	11.8350971	14.5104415	20.0068533	5.4964118	5.4964118
2004	3.3024274	3.3024274	6.4494030	9.7518304	9.0824675	12.3848949	15.1583138	20.8794087	5.7210949	5.7210949
2005	2.9959842	2.9959842	5.8021824	8.7981666	8.2266875	11.2226717	13.7230745	18.9475080	5.2244335	5.2244335
2006	3.0465000	3.0465000	5.9257711	8.9722711	8.3523404	11.3988404	13.9276702	19.2224281	5.2947579	5.2947579
2007	3.0049147	3.0049147	5.8312935	8.8362082	8.2244118	11.2293265	13.7055957	18.9240824	5.2184867	5.2184867
2008	3.0701349	3.0701349	5.9394030	9.0095379	8.3917280	11.4618629	13.9597553	19.2657819	5.3060266	5.3060266
2009	3.0801836	3.0801836	5.9478109	9.0279945	8.4187363	11.4989199	13.9794202	19.2923866	5.3129664	5.3129664
2010	3.0856033	3.0856033	5.9432338	9.0288371	8.4387733	11.5243766	13.9687287	19.2780930	5.3093643	5.3093643
2011	3.0966013	3.0966013	5.9492537	9.0458550	8.4723711	11.5689724	13.9828032	19.2969489	5.3141457	5.3141457
2012	3.1117314	3.1117314	5.9659701	9.0777015	8.5230075	11.6347389	14.0222074	19.3499818	5.3277744	5.3277744
2013	3.3245120	3.3245120	6.3541294	9.6786414	9.1077670	12.4322790	14.9345160	20.5777688	5.6432528	5.6432528
2014	3.5651741	3.5651741	6.7923881	10.3575622	9.7803294	13.3455035	15.9645106	21.9020074	5.9374968	5.9374968
2015	3.6239593	3.6239593	6.8885572	10.5125165	9.9576256	13.5815849	16.1904947	22.2684391	6.0779444	6.0779444
2016	3.6192248	3.6192248	6.8807967	10.5000215	9.9648889	13.5841137	16.1341223	22.1924747	6.0583524	6.0583524
2017	3.6378187	3.6378187	6.9002675	10.5380862	10.0362338	13.6740525	16.1798511	22.2541514	6.0743003	6.0743003
2018	3.6405632	3.6405632	6.8878319	10.5283951	10.0764557	13.7170189	16.1505798	22.2147856	6.0642058	6.0642058
2019	3.6476320	3.6476320	6.8860484	10.5336804	10.1385597	13.7861917	16.1463617	22.2091275	6.0627658	6.0627658
2020	3.5765770	3.5765770	6.7352358	10.3118128	9.9828112	13.5593882	15.7928404	21.7331417	5.9403013	5.9403013
2021	3.5698060	3.5698060	6.7231470	10.2929530	9.9737200	13.5435260	15.7646223	21.6952037	5.9305814	5.9305814
2022	3.5654030	3.5654030	6.7148732	10.2802762	9.9614400	13.5268430	15.7451862	21.6694666	5.9242804	5.9242804
2023	3.5918657	3.5918657	6.7647642	10.3566299	10.0354000	13.6272657	15.8620798	21.8262528	5.9641730	5.9641730
2024	3.5635373	3.5635373	6.7114051	10.2749424	9.9562400	13.5197773	15.7370106	21.6582873	5.9212767	5.9212767
2025	3.5850000	3.5850000	6.7518331	10.3368331	10.0162400	13.6012400	15.8317819	21.7854952	5.9537133	5.9537133
2026	3.5708507	3.5708507	6.7251784	10.2960291	9.9766800	13.5475307	15.7692766	21.7013888	5.9321122	5.9321122
2027	3.5342090	3.5342090	6.6561633	10.1903723	9.8742800	13.4084890	15.6074202	21.4839982	5.8765780	5.8765780
2028	3.5318507	3.5318507	6.6517539	10.1836046	9.8677200	13.3995707	15.5970479	21.4696918	5.8726439	5.8726439
2029	3.5540149	3.5540149	6.6934701	10.2474850	9.9296000	13.4836149	15.6948989	21.6010791	5.9061802	5.9061802
2030	3.4850149	3.4850149	6.5635157	10.0485306	9.7368400	13.2218549	15.3901915	21.1915910	5.8013995	5.8013995
2031	3.5026716	3.5026716	6.5968094	10.0994810	9.7862000	13.2888716	15.4682128	21.2963829	5.8281701	5.8281701
2032	3.5196716	3.5196716	6.6288149	10.1484865	9.8337200	13.3533916	15.5432926	21.3970742	5.8537816	5.8537816
2033	3.4986418	3.4986418	6.5891795	10.0878213	9.7749200	13.2735618	15.4503670	21.2722909	5.8219239	5.8219239
2034	3.5165224	3.5165224	6.6228696	10.1393920	9.8248800	13.3414024	15.5293351	21.3784551	5.8491200	5.8491200
2035	3.5034478	3.5034478	6.5982461	10.1016939	9.7883600	13.2918078	15.4716330	21.3010547	5.8294217	5.8294217

a) For the period 1968 through 1987, rates are for an interim facility.b) The relatively minor costs of Del Valle Pumping Plant have been combined with those of South Bay Pumping Plant to simplify the allocation procedure.

## Unit Variable OMP&R Component of Transportation Charge (Dollars per Acre-Foot)

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				`	California Aque	educt (continue	d)			Fage 2 01 4
-	Rea	ich 4	Reac	h 14A		ch 15A	,	h 16A	Read	ch 17E
-		migos ng Plant		a Vista ng Plant		erink ng Plant		sman ng Plant		onston ng Plant
Calendar Year	Unit Rate (11)	Cumulative Unit Rate (12)	Unit Rate (13)	Cumulative Unit Rate (14)	Unit Rate (15)	Cumulative Unit Rate (16)	Unit Rate (17)	Cumulative Unit Rate (18)	Unit Rate (19)	Cumulative Unit Rate (20)
1961 1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1966 1967 1968 1969 1970	0 0 1.0732031 0.7028165 0.7813430	0 0 2.6167353 1.8095316 1.7278779	0 0 0 0 0.3333333	0 0 0 0 2.0612112	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1971	0.4125312	1.2933749	1.3594550	2.6528299	4.9729730	7.6258029	0	0	0	0
1972	0.5662758	1.4693754	1.0808850	2.5502604	1.1418280	3.6920884	2.2892599	5.9813483	7.3206022	13.3019505
1973	0.5996892	1.5383283	0.9844807	2.5228090	1.2143719	3.7371809	2.1051633	5.8423442	7.4512435	13.2935877
1974	0.5736894	1.4709300	0.9223291	2.3932591	1.0924098	3.4856689	1.9449022	5.4305711	6.9004732	12.3310443
1975	0.4606980	1.5569000	0.8190849	2.3759849	0.9574493	3.3334342	1.9610412	5.2944754	6.9962702	12.2907456
1976	0.5163827	1.7105095	0.9626676	2.6731771	1.0211874	3.6943645	2.2275746	5.9219391	7.9384515	13.8603906
1977	0.6138931	2.3818667	1.0969170	3.4787837	1.3715867	4.8503704	2.9301764	7.7805468	9.9990004	17.7795472
1978	0.4545898	2.0659924	0.9606230	3.0266154	1.0432294	4.0698448	1.9779157	6.0477605	7.0810192	13.1287797
1979	0.6587934	2.7952984	1.1099369	3.9052353	1.2652451	5.1704804	2.6939701	7.8644505	9.6345625	17.4990130
1980	0.8056952	2.1736228	1.3516057	3.5252285	1.5041463	5.0293748	3.1923433	8.2217181	10.9860288	19.2077469
1981	1.0909294	3.1846645	1.2388784	4.4235429	1.3195560	5.7430989	2.9541028	8.6972017	9.9484860	18.6456877
1982	0.8307526	2.5812833	1.2001820	3.7814653	1.3668611	5.1483264	2.8880977	8.0364241	10.1769284	18.2133525
1983	0.3789496	1.1824111	0.7434250	1.9258361	0.8851706	2.8110067	1.7730111	4.5840178	5.5794328	10.1634506
1984	0.6622140	1.8552322	1.0606757	2.9159079	1.2272792	4.1431871	2.5603259	6.7035130	8.3017115	15.0052245
1985	0.8734833	2.4939014	1.4204810	3.9143824	1.6516280	5.5660104	3.4695771	9.0355875	11.8181222	20.8537097
1986	1.3962501	4.6754600	2.3763988	7.0518588	2.7626510	9.8145098	5.9668234	15.7813332	20.6491088	36.4304420
1987	1.2978236	4.2570992	2.2564137	6.5135129	2.5746561	9.0881690	5.3763657	14.4645347	17.9738340	32.4383687
1988	1.2038035	3.9136941	2.1362050	6.0498991	2.4304101	8.4803092	5.0693228	13.5496320	16.8190471	30.3686791
1989	1.5234695	4.9736575	2.7054583	7.6791158	3.0205179	10.6996337	6.5778425	17.2774762	22.2785524	39.5560286
1990	1.8947494	6.1030626	3.3054275	9.4084901	3.7453477	13.1538378	8.6764188	21.8302566	31.0160447	52.8463013
1991	1.0496191	4.7480024	2.1130928	6.8610952	2.4152860	9.2763812	5.6819217	14.9583029	20.4728762	35.4311791
1992	0.8904306	3.1945908	1.4579607	4.6525515	1.6750151	6.3275666	3.4652836	9.7928502	11.7499777	21.5428279
1993	0.1749542	0.4343682	-0.0797324	0.3546358	-0.0569022	0.2977336	-0.6004609	-0.3027273	-2.9285687	-3.2312960
1994	1.4306291	4.7307218	2.4978367	7.2285585	2.7840280	10.0125865	6.0336401	16.0462266	21.3409980	37.3872246
1995	0.7635812	2.6989500	1.2022775	3.9012275	1.3184130	5.2196405	2.6999349	7.9195754	9.1804467	17.1000221
1996	1.6286176	4.8896852	2.5272004	7.4168856	2.7453014	10.1621870	6.1259328	16.2881198	22.0440076	38.3321274
1997	1.8459506	6.3101619	3.3658615	9.6760234	4.1225839	13.7986073	8.9327394	22.7313467	31.8868476	54.6181943
1998	1.9216351	6.5527987	3.3809510	9.9337497	4.1172278	14.0509775	8.9120767	22.9630542	31.7819990	54.7450532
1999	1.8053174	6.2465918	3.1903448	9.4369366	3.8869813	13.3239179	8.4193138	21.7432317	30.0564946	51.7997263
2000	1.9979328	6.8494937	3.5810190	10.4305127	4.3648857	14.7953984	9.4557239	24.2511223	33.7591584	58.0102807
2001	1.8829023	6.4817538	3.3328540	9.8146078	4.0625912	13.8771990	8.8010130	22.6782120	31.4219170	54.1001290
2002	2.3186449	7.8694976	4.1029177	11.9724153	5.0014904	16.9739057	10.8348772	27.8087829	38.6829348	66.4917177
2003	2.2940477	7.7904595	4.0595455	11.8500050	4.9486594	16.7986644	10.7204306	27.5190950	38.2744648	65.7935598
2004	2.3962438	8.1173387	4.2399742	12.3573129	5.1685147	17.5258276	11.1966573	28.7224849	39.9744532	68.6969381
2005	2.1694869	7.3939204	3.8391849	11.2331053	4.6799918	15.9130971	10.1384499	26.0515470	36.1965656	62.2481126
2006	2.2019526	7.4967105	3.8965916	11.3933021	4.7500020	16.1433041	10.2901437	26.4334478	36.7381709	63.1716187
2007	2.1665980	7.3850847	3.8337853	11.2188700	4.6733533	15.8922233	10.1240239	26.0162472	36.1449463	62.1611935
2008	2.2069493	7.5129759	3.9053080	11.4182839	4.7606118	16.1788957	10.3131140	26.4920097	36.8201229	63.3121326
2009	2.2100209	7.5229873	3.9109797	11.4339670	4.7675501	16.2015171	10.3280816	26.5295987	36.8736757	63.4032744
2010	2.2082527	7.5176170	3.9076825	11.4252995	4.7634754	16.1887749	10.3193135	26.5080884	36.8422311	63.3503195
2011	2.2105203	7.5246660	3.9118167	11.4364827	4.7685415	16.2050242	10.3302681	26.5352923	36.8813891	63.4166814
2012	2.2167430	7.5445174	3.9228543	11.4673717	4.7820049	16.2493766	10.3594322	26.6088088	36.9855758	63.5943846
2013	2.3610828	8.0043356	4.1782970	12.1826326	5.0934171	17.2760497	11.0340838	28.3101335	39.3941998	67.7043333
2014	2.4946572	8.4321540	4.3911030	12.8232570	5.3488089	18.1720659	11.5841865	29.7562524	41.3511627	71.1074151
2015	2.5596454	8.6375898	4.5297168	13.1673066	5.5218375	18.6891441	11.9621885	30.6513326	42.7077681	73.3591007
2016	2.5507070	8.6090594	4.5134788	13.1225382	5.5019537	18.6244919	11.9190717	30.5435636	42.5537780	73.0973416
2017	2.5578780	8.6321783	4.5264660	13.1586443	5.5178252	18.6764695	11.9534605	30.6299300	42.6765570	73.3064870
2018	2.5533122	8.6175180	4.5180051	13.1355231	5.5074621	18.6429852	11.9310121	30.5739973	42.5963592	73.1703565
2019	2.5525824	8.6153482	4.5172045	13.1325527	5.5065028	18.6390555	11.9290008	30.5680563	42.5892036	73.1572599
2020	2.4967717	8.4370730	4.4181840	12.8552570	5.3857992	18.2410562	11.6674817	29.9085379	41.6555493	71.5640872
2021	2.4922779	8.4228593	4.4101199	12.8329792	5.3759648	18.2089440	11.6461334	29.8550774	41.5794406	71.4345180
2022	2.4891057	8.4133861	4.4047366	12.8181227	5.3693933	18.1875160	11.6319444	29.8194604	41.5286303	71.3480907
2023	2.5077259	8.4718989	4.4376821	12.9095810	5.4095780	18.3191590	11.7190038	30.0381628	41.8395314	71.8776942
2024	2.4878870	8.4091637	4.4023985	12.8115622	5.3665343	18.1780965	11.6257001	29.8037966	41.5063964	71.3101930
2025	2.5029192	8.4566325	4.4291030	12.8857355	5.3991343	18.2848698	11.6963526	29.9812224	41.7586446	71.7398670
2026	2.4931025	8.4252147	4.4116047	12.8368194	5.3778137	18.2146331	11.6501039	29.8647370	41.5935802	71.4583172
2027	2.4673462	8.3439242	4.3661751	12.7100993	5.3224140	18.0325133	11.5301205	29.5626338	41.1651477	70.7277815
2028	2.4658112	8.3384551	4.3633765	12.7018316	5.3190275	18.0208591	11.5227765	29.5436356	41.1389550	70.6825906
2029	2.4813753	8.3875555	4.3910246	12.7785801	5.3527174	18.1312975	11.5958112	29.7271087	41.3997574	71.1268661
2030	2.4329781	8.2343776	4.3051448	12.5395224	5.2479655	17.7874879	11.3688063	29.1562942	40.5891187	69.7454129
2031	2.4454470	8.2736171	4.3274701	12.6010872	5.2752469	17.8763341	11.4279622	29.3042963	40.8004163	70.1047126
2032	2.4573735	8.3111551	4.3484794	12.6596345	5.3008699	17.9605044	11.4834887	29.4439931	40.9986918	70.4426849
2033	2.4425807	8.2645046	4.3222042	12.5867088	5.2688105	17.8555193	11.4139965	29.2695158	40.7505086	70.0200244
2034	2.4550792	8.3041992	4.3446692	12.6488684	5.2962170	17.9450854	11.4734000	29.4184854	40.9627243	70.3812097
2035	2.4458632	8.2752849	4.3281350	12.6034199	5.2760462	17.8794661	11.4296657	29.3091318	40.8064571	70.1155889

## Unit Variable OMP&R Component of Transportation Charge (Dollars per Acre-Foot)

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					llars per Acre-Foot) California Aqueduct (continued)					
			<del></del>			,				
		ch 18A		ach 22B		ch 23		ch 26A		h 29A
	Alamo P	owerplant	Pearblossom	Pumping Plant	Mojave Sipho	on Powerplant	Devil Canyo	n Powerplant	Oso Pum	ping Plant
Calandar	Unit Rate	Cumulative Unit Rate	Unit Rate	Cumulative Unit Rate	Unit Rate	Cumulative Unit Rate	Unit Rate	Cumulative Unit Rate	Unit Rate	Cumulative Unit Rate
Calendar Year	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)
1961 1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1966 1967 1968 1969 1970	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0						
1971 1972 1973 1974 1975	0 0 0 0	0 13.3019505 13.2935877 12.3310443 12.2907456	0 14.2519509 4.4326545 3.4431782 3.1739313	0 27.5539014 17.7262422 15.7742225 15.4646769	0 0 0 0	0 27.5539014 17.7262422 15.7742225 15.4646769	-8.4298618 -5.1043660 -5.6510611	0 25.1821367 9.2963804 10.6698565 9.8136158	0 1.4212193 1.0210537 0.9241725 0.9362286	0 14.7231698 14.3146414 13.2552168 13.2269742
1976 1977 1978 1979 1980	0 0 0 0	13.8603906 17.7795472 13.1287797 17.4990130 19.2077469	3.9391330 3.4988957 4.1377503 5.1961178 4.3918283	17.7995236 21.2784429 17.2665300 22.6951308 23.5995752	0 0 0 0	17.7995236 21.2784429 17.2665300 22.6951308 23.5995752	-6.4449941 -11.6274558 -8.1314274 -9.5825772 -8.3797007	11.3545295 9.6509871 9.1351026 13.1125536 15.2198745	0.8622774 0.9076172 0.7314697 0.9504526 1.4269064	14.7226680 18.6871644 13.8602494 18.4494656 20.6346533
1981 1982 1983 1984 1985	0 0 0 0	18.6456877 18.2133525 10.1634506 15.0052245 20.8537097	3.9979411 3.6618080 1.7398697 2.4963740 3.4967556	22.6436288 21.8751605 11.9033203 17.5015985 24.3504653	0 0 0 0	22.6436288 21.8751605 11.9033203 17.5015985 24.3504653	-6.7421980 -6.9205064 -23.7901875 -29.2940487 -30.7672356	15.9014308 14.9546541 -11.8868672 -11.7924502 -6.4167703	1.5649076 1.4942612 1.4582832 1.7879684 2.1683888	20.2105953 19.7076137 11.6217338 16.7931929 23.0220985
1986 1987 1988 1989 1990	-2.3583180 -2.6107019 -1.4076158 -1.1019487 -1.0673268	34.0721240 29.8276668 28.9610633 38.4540799 51.7789745	6.0001395 5.1909608 4.8456180 6.4423849 8.9810187	40.0722635 35.0186276 33.8066813 44.8964648 60.7599932	0 0 0 0	40.0722635 35.0186276 33.8066813 44.8964648 60.7599932	-29.2499580 -30.5133657 -29.5512806 -28.3706997 -28.8797266	10.8223055 4.5052619 4.2554007 16.5257651 31.8802666	3.2342581 3.1272921 2.9971055 3.5381171 3.6781647	39.6647001 35.5656608 33.3657846 43.0941457 56.5244660
1991 1992 1993 1994 1995	-1.5208846 -2.6366353 -0.1885524 -0.1278266 -3.4425314	33.9102945 18.9061926 -3.4198484 37.2593980 13.6574907	6.0787491 3.6820064 -1.0123826 6.4124432 3.3131032	39.9890436 22.5881990 -4.4322310 43.6718412 16.9705939	0 0 0 0	39.9890436 22.5881990 -4.4322310 43.6718412 16.9705939	-30.3294687 -30.0926575 -30.6629489 -30.4781656 -30.3517624	9.6595749 -7.5044585 -35.0951799 13.1936756 -13.3811685	2.1849463 1.8167497 0.2762690 3.0409092 1.2709971	37.6161254 23.3595776 -2.9550270 40.4281338 18.3710192
1996 1997 1998 1999 2000	-6.0056750 -4.6640587 -3.3483273 -3.9824874 -3.7038297	32.3264524 49.9541356 51.3967259 47.8172389 54.3064510	6.5515967 9.3172159 9.7925058 9.1547796 10.2889880	38.8780491 59.2713515 61.1892317 56.9720185 64.5954390	-2.3734530 -5.9340098 -5.2630282 -4.5185377 -4.5765388	36.5045961 53.3373417 55.9262035 52.4534808 60.0189002	-29.1501140 -27.8436260 -27.9227363 -27.7331407 -28.0664335	7.3544821 25.4937157 28.0034672 24.7203401 31.9524667	3.0919561 3.7532724 3.9309099 3.7315128 4.1742291	41.4240835 58.3714667 58.6759631 55.5312391 62.1845098
2001 2002 2003 2004 2005	-3.7779912 -4.0063887 -4.0043770 -4.0424869 -4.0082537	50.3221378 62.4853290 61.7891828 64.6544512 58.2398589	9.5619510 11.7943008 11.6708231 12.1834239 11.0351985	59.8840888 74.2796298 73.4600059 76.8378751 69.2750574	-4.4291744 -4.8649666 -4.8772863 -4.6232874 -4.8883794	55.4549144 69.4146632 68.5827196 72.2145877 64.3866780	-28.2800455 -28.5870150 -28.5772028 -28.6971665 -28.5677537	27.1748689 40.8276482 40.0055168 43.5174212 35.8189243	3.8805067 4.7936481 4.7426076 4.9543460 4.4852827	57.9806357 71.2853658 70.5361674 73.6512841 66.7333953
2006 2007 2008 2009 2010	-4.0125415 -4.0183017 -4.0227575 -4.0038076 -4.0278650	59.1590772 58.1428918 59.2893751 59.3994668 59.3224545	11.2030330 11.0187659 11.2237939 11.2435580 11.2319431	70.3621102 69.1616577 70.5131690 70.6430248 70.5543976	-4.6638088 -4.4655537 -4.7637098 -4.8094018 -4.8063756	65.6983014 64.6961040 65.7494592 65.8336230 65.7480220	-28.6783468 -28.7425143 -28.5984383 -28.5801077 -28.5787004	37.0199546 35.9535897 37.1510209 37.2535153 37.1693216	4.5521141 4.4795481 4.5626118 4.5690295 4.5655440	67.7237328 66.6407416 67.8747444 67.9723039 67.9158635
2011 2012 2013 2014 2015	-4.0301213 -3.9965501 -4.0043079 -3.8721147 -4.0110776	59.3865601 59.5978345 63.7000254 67.2353004 69.3480231	11.2445722 11.2771554 12.0148499 12.3391722 13.0247880	70.6311323 70.8749899 75.7148753 79.5744726 82.3728111	-4.8970733 -4.9459975 -4.9642670 -4.3476880 -4.9083613	65.7340590 65.9289924 70.7506083 75.2267846 77.4644498	-28.5350199 -28.5155802 -28.5073224 -28.7134123 -28.5237033	37.1990391 37.4134122 42.2432859 46.5133723 48.9407465	4.5701344 4.5830435 4.8812028 5.2178698 5.2917082	67.9868158 68.1774281 72.5855361 76.3252849 78.6508089
2016 2017 2018 2019 2020	-4.0212890 -3.9928896 -4.0208973 -4.0038105 -4.0608959	69.0760526 69.3135974 69.1494592 69.1534494 67.5031913	12.9722700 13.0123045 12.9856279 12.9868111 12.7013183	82.0483226 82.3259019 82.1350871 82.1402605 80.2045096	-4.6267559 -4.7786966 -4.8608198 -4.8968033 -4.8939855	77.4215667 77.5472053 77.2742673 77.2434572 75.3105241	-28.6699051 -28.5915851 -28.5531170 -28.5362619 -28.5342260	48.7516616 48.9556202 48.7211503 48.7071953 46.7762981	5.2733236 5.2882124 5.2786768 5.2772855 5.1617421	78.3706652 78.5946994 78.4490333 78.4345454 76.7258293
2021 2022 2023 2024 2025	-4.0215351 -3.9908816 -4.0043877 -4.0003496 -4.0032333	67.4129829 67.3572091 67.8733065 67.3098434 67.7366337	12.6758157 12.6610914 12.7590175 12.6533313 12.7320347	80.0887986 80.0183005 80.6323240 79.9631747 80.4686684	-4.9068076 -5.0106658 -4.8943599 -4.7897837 -4.8838257	75.1819910 75.0076347 75.7379641 75.1733910 75.5848427	-28.5350567 -28.4754301 -28.5402862 -28.5781759 -28.5464578	46.6469343 46.5322046 47.1976779 46.5952151 47.0383849	5.1525100 5.1461803 5.1843998 5.1434901 5.1744357	76.5870280 76.4942710 77.0620940 76.4536831 76.9143027
2026 2027 2028 2029 2030	-3.9997480 -4.0296897 -4.0325491 -4.0065110 -4.0213806	67.4585692 66.6980918 66.6500415 67.1203551 65.7240323	12.6820780 12.5508441 12.5435919 12.6254616 12.3748865	80.1406472 79.2489359 79.1936334 79.7458167 78.0989188	-4.9176708 -4.8664647 -4.7237130 -4.8199044 -4.5879702	75.2229764 74.3824712 74.4699204 74.9259123 73.5109486	-28.5236584 -28.5470361 -28.6104356 -28.5774485 -28.6864440	46.6993180 45.8354351 45.8594848 46.3484638 44.8245046	5.1540450 5.1010959 5.0977223 5.1297087 5.0301273	76.6123622 75.8288774 75.7803129 76.2565748 74.7755402
2031 2032 2033 2034 2035	-4.0377143 -4.0036450 -3.9861133 -4.0040411 -4.0049849	66.0669983 66.4390399 66.0339111 66.3771686 66.1106040	12.4392186 12.5008757 12.4231630 12.4919316 12.4455127	78.5062169 78.9399156 78.4570741 78.8691002 78.5561167	-4.5870763 -4.6037082 -4.8629410 -4.8676578 -4.5180887	73.9191406 74.3362074 73.5941331 74.0014424 74.0380280	-28.6747619 -28.6774040 -28.5493056 -28.5509284 -28.7199673	45.2443787 45.6588034 45.0448275 45.4505140 45.3180607	5.0556394 5.0801681 5.0498270 5.0756273 5.0567750	75.1603520 75.5228530 75.0698514 75.4568370 75.1723639

## TABLE B-17 Unit Variable OMP&R Component of Transportation Charge (Dollars per Acre-Foot)

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	(Dollars per Acre-Foot) Page 4								
					Aqueduct (cont				
	Reac	h 29G	Read	ch 29J	Reac	h 31A	Rea	nch 33A	
	Warne P	owerplant	Castaic F	Powerplant		nd Badger Hill g Plants	Pass Pumping I	estone, and Polonio Plants and San Luis Powerplant	
Calendar	Unit Rate	Cumulative Unit Rate	Unit Rate	Cumulative Unit Rate	Unit Rate	Cumulative Unit Rate	Unit Rate	Cumulative Unit Rate	
Year	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	
1961 1962 1963 1964	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	
1965	ő	ő	Ö	ő	ő	ő	ő	0	
1966 1967 1968 1969 1970	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 1.5014866 1.2624065 1.6309699	0 0 4.1182219 3.0719381 3.3588478	0 0 0 0	0 0 0 0	
1971 1972 1973 1974 1975	0 0 0 0	0 14.7231698 14.3146414 13.2552168 13.2269742	0 -2.9350830 -6.8099448 -7.4013274 -6.5604921	0 11.7880868 7.5046966 5.8538894 6.6664821	1.4985537 1.9517720 1.5374531 1.5168982 1.1130304	2.7919286 3.4211474 3.0757814 2.9878282 2.6699304	0 0 0 0	0 0 0 0	
1976 1977 1978 1979 1980	0 0 0 0	14.7226680 18.6871644 13.8602494 18.4494656 20.6346533	-6.7213324 -30.4985994 -9.0130187 -19.0478097 -20.5438586	8.0013356 -11.8114350 4.8472307 -0.5983441 0.0907947	1.5685447 1.7573375 1.9429506 1.5600341 1.5124754	3.2790542 4.1392042 4.0089430 4.3553325 3.6860982	0 0 0 0	0 0 0 0	
1981 1982 1983 1984 1985	0 -2.1714430 -9.1019731 -15.0246012 -14.7115359	20.2105953 17.5361707 2.5197607 1.7685917 8.3105626	-11.3026541 -9.5987314 -36.3842929 -13.5757421 -40.5622865	8.9079412 7.9374393 -33.8645322 -11.8071504 -32.2517239	1.5414290 1.7581649 0.1779482 0.8626279 1.2075223	4.7260935 4.3394482 1.3603593 2.7178601 3.7014237	0 0 0 0	0 0 0 0	
1986 1987 1988 1989 1990	-14.1893653 -14.8696165 -14.7032843 -14.4231503 -14.1850383	25.4753348 20.6960443 18.6625003 28.6709954 42.3394277	-28.1596224 -27.0536484 -25.6857024 -25.3986130 -26.0776141	-2.6842876 -6.3576041 -7.0232021 3.2723824 16.2618136	2.2665598 1.9135072 1.7819524 2.4279758 3.7932278	6.9420198 6.1706064 5.6956465 7.4016333 9.8962904	0 0 0 0	0 0 0 0	
1991 1992 1993 1994 1995	-14.7118666 -13.6631326 -11.3163585 -14.7696625 -8.9621960	22.9042588 9.6964450 -14.2713855 25.6584713 9.4088232	-25.0234633 -24.5985962 -22.2197351 -26.7435205 -22.8954000	-2.1192045 -14.9021512 -36.4911206 -1.0850492 -13.4865768	2.4124332 0.7449879 -0.5459487 2.3519126 1.1890179	7.1604356 3.9395787 -0.1115805 7.0826344 3.8879679	0 0 0 0	0 0 0 0	
1996 1997 1998 1999 2000	-14.7927830 -13.8166803 -13.8403110 -16.1501011 -15.9047849	26.6313005 44.5547864 44.8356521 39.3811380 46.2797249	-29.4353339 -26.5184682 -26.3362448 -25.8795636 -25.9181686	-2.8040334 18.0363182 18.4994073 13.5015744 20.3615563	2.5542266 3.7355526 3.9291050 3.6875803 4.1250687	7.4439118 10.0457145 10.4819037 9.9341721 10.9745624	0 27.6125337 29.0757606 28.1988629 31.5458400	0 37.6582482 39.5576643 38.1330350 42.5204024	
2001 2002 2003 2004 2005	-15.6717440 -15.3034996 -15.2669742 -15.2977865 -15.2509772	42.3088917 55.9818662 55.2691932 58.3534976 51.4824181	-26.1793954 -24.8967155 -24.8865154 -24.8976722 -24.8827745	16.1294963 31.0851507 30.3826778 33.4558254 26.5996436	3.8347468 4.7373079 4.6868458 4.8961032 4.4325272	10.3165006 12.6068055 12.4773053 13.0134419 11.8264476	29.3221370 36.2281304 35.8422240 37.4424992 33.8973555	39.6386376 48.8349359 48.3195293 50.4559411 45.7238031	
2006 2007 2008 2009 2010	-15.2637333 -15.3008641 -15.2419709 -15.2671187 -15.2813055	52.4599995 51.3398775 52.6327735 52.7051852 52.6345580	-24.8855690 -24.8957906 -24.8762596 -24.8825323 -24.8870797	27.5744305 26.4440869 27.7565139 27.8226529 27.7474783	4.4986129 4.4268825 4.5089777 4.5153315 4.5118709	11.9953234 11.8119672 12.0219536 12.0383188 12.0294879	34.4027466 33.8541980 34.4820106 34.5305593 34.5041143	46.3980700 45.6661652 46.5039642 46.5688781 46.5336022	
2011 2012 2013 2014 2015	-15.2560978 -15.2646713 -15.2857504 -15.2773684 -15.2651639	52.7307180 52.9127568 57.2997857 61.0479165 63.3856450	-24.8809332 -24.8832150 -24.8875735 -24.8872231 -24.8827667	27.8497848 28.0295418 32.4122122 36.1606934 38.5028783	4.5164207 4.5291455 4.8238224 5.1565033 5.2294932	12.0410867 12.0736629 12.8281580 13.5886573 13.8670830	34.5389155 34.6362540 36.8897086 39.4339301 39.9921119	46.5800022 46.7099169 49.7178666 53.0225874 53.8591949	
2016 2017 2018 2019 2020	-15.2625728 -15.2705136 -15.2830918 -15.2703298 -15.2750288	63.1080924 63.3241858 63.1659415 63.1642156 61.4508005	-24.8827238 -24.8842018 -24.8873124 -24.8842104 -24.8855501	38.2253686 38.4399840 38.2786291 38.2800052 36.5652504	5.2112940 5.2260610 5.2165983 5.2152424 5.1010546	13.8203534 13.8582393 13.8341163 13.8305906 13.5381276	39.8528786 39.9658372 39.8935391 39.8830974 39.0098459	53.6732320 53.8240765 53.7276554 53.7136880 52.5479735	
2021 2022 2023 2024 2025	-15.2689197 -15.2733860 -15.2775240 -15.2686708 -15.2599450	61.3181083 61.2208850 61.7845700 61.1850123 61.6543577	-24.8842387 -24.8850469 -24.8864038 -24.8841666 -24.8817327	36.4338696 36.3358381 36.8981662 36.3008457 36.7726250	5.0919437 5.0856636 5.1234179 5.0830199 5.1136375	13.5148030 13.4990497 13.5953168 13.4921836 13.5702700	38.9401725 38.8921772 39.1809012 38.8719746 39.1060494	52.4549755 52.3912269 52.7762180 52.3641582 52.6763194	
2026 2027 2028 2029 2030	-15.2693592 -15.2842112 -15.2753922 -15.2667861 -15.3028788	61.3430030 60.5446662 60.5049207 60.9897887 59.4726614	-24.8839236 -24.8876139 -24.8854917 -24.8836367 -24.8956076	36.4590794 35.6570523 35.6194290 36.1061520 34.5770538	5.0934470 5.0411639 5.0378168 5.0694158 4.9709992	13.5186617 13.3850881 13.3762719 13.4569713 13.2053768	38.9516642 38.5518543 38.5262605 38.7679255 38.0152796	52.4703259 51.9369424 51.9025324 52.2248968 51.2206564	
2031 2032 2033 2034 2035	-15.2450742 -15.2464629 -15.2764560 -15.2723086 -15.3406450	59.9152778 60.2763901 59.7933954 60.1845284 59.8317189	-24.8771999 -24.8790369 -24.8852934 -24.8844088 -24.9038453	35.0380779 35.3973532 34.9081020 35.3001196 34.9278736	4.9961990 5.0204571 4.9904409 5.0159470 4.9973110	13.2698161 13.3316122 13.2549455 13.3201462 13.2725959	38.2080129 38.3934540 38.1639191 38.3589933 38.2164543	51.4778290 51.7250662 51.4188646 51.6791395 51.4890502	

TABLE B-18

## Variable OMP&R Component of Transportation Charge for Each Contractor (Dollars)

	,			ı	(Dollars)		Page 1			
	1	North Bay Area	1		South B	ay Area			ntral Coastal A	rea
Calendar Year	Napa County FC&WCD (1)	Solano County WA (2)	Total (3)	Alameda County FC&WCD, Zone 7	Alameda County Water District (5)	Santa Clara Valley Water District (6)	Total (7)	San Luis Obispo County FC&WCD (8)	Santa Barbara County FC&WCD (9)	Total (10)
1961 1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0	0 2,051 7,900 5,931 10,918	0 34,919 49,811 68,203 68,765	0 0 0 0 62,926	0 36,970 57,711 74,134 142,609	0 0 0 0	0 0 0 0	0 0 0 0
1966 1967 1968 1969 1970	0 0 6,989 8,551 13,598	0 0 0 0	0 0 6,989 8,551 13,598	19,330 19,958 29,898 31,859 49,688	52,135 53,785 120,985 3,904 0	121,140 163,255 341,769 298,968 431,442	192,605 236,998 492,652 334,731 481,130	0 0 0 0	0 0 0 0	0 0 0 0
1971 1972 1973 1974 1975	10,609 14,434 14,449 17,473 14,779	0 0 0 0	10,609 14,434 14,449 17,473 14,779	23,842 54,839 18,397 9,499 22,317	28,329 144,669 15,590 29 4,765	416,328 524,207 547,808 636,187 425,285	468,499 723,715 581,795 645,715 452,367	0 0 0 0	0 0 0 0	0 0 0 0
1976 1977 1978 1979 1980	20,856 22,635 21,692 16,237 19,945	0 0 0 0	20,856 22,635 21,692 16,237 19,945	97,875 82,578 74,911 136,993 98,836	121,693 123,044 39,986 77,085 64,953	502,768 497,792 652,861 652,117 518,020	722,336 703,414 767,758 866,195 681,809	0 0 0 0	0 0 0 0	0 0 0 0
1981 1982 1983 1984 1985	23,841 12,159 2,335 4,866 10,186	0 0 0 0	23,841 12,159 2,335 4,866 10,186	126,888 88,298 10,086 27,042 80,102	141,961 42,497 6,681 13,306 103,092	569,996 587,133 183,594 353,658 467,688	838,845 717,928 200,361 394,006 650,882	0 0 0 0	0 0 0 0	0 0 0 0
1986 1987 1988 1989 1990	15,472 27,222 31,383 17,043 58,770	0 0 31,659 66,384 111,541	15,472 27,222 63,042 83,427 170,311	113,771 222,770 230,933 290,247 532,131	132,753 241,403 298,889 288,105 510,264	943,717 837,289 784,163 995,678 1,478,376	1,190,241 1,301,462 1,313,985 1,574,030 2,520,771	0 0 0 0	0 0 0 0	0 0 0 0
1991 1992 1993 1994 1995	7,713 12,437 (7,161) 37,288 15,406	19,404 23,729 (18,627) 78,729 36,033	27,117 36,166 (25,788) 116,017 51,439	105,769 93,987 (35,895) 230,457 155,392	142,150 122,717 (12,714) 256,594 91,424	316,937 274,477 (76,827) 639,665 147,754	564,856 491,181 (125,436) 1,126,716 394,570	0 0 0 0	(2,628) 0 0 0 0	(2,628) 0 0 0 0
1996 1997 1998 1999 2000	30,259 103,959 116,216 108,290 127,760	93,706 164,685 199,033 177,030 199,769	123,965 268,644 315,249 285,320 327,529	206,278 688,960 514,294 728,388 810,174	179,170 528,719 552,452 533,070 612,914	707,653 1,163,990 1,659,015 1,583,451 1,761,246	1,093,101 2,381,669 2,725,761 2,844,909 3,184,334	489 221,619 229,948 223,880 252,231	0 1,468,144 1,542,196 1,734,519 1,934,083	489 1,689,763 1,772,144 1,958,399 2,186,314
2001 2002 2003 2004 2005	122,773 169,470 175,159 190,727 179,563	186,363 245,710 249,223 266,519 240,318	309,136 415,180 424,382 457,246 419,881	756,713 930,006 920,315 960,452 871,585	572,470 849,136 840,288 876,935 795,795	1,645,029 2,021,751 2,000,685 2,087,941 1,894,751	2,974,212 3,800,893 3,761,288 3,925,328 3,562,131	237,396 1,220,873 1,207,988 1,261,398 1,143,095	1,803,003 2,221,306 2,197,862 2,295,040 2,079,793	2,040,399 3,442,179 3,405,850 3,556,438 3,222,888
2006 2007 2008 2009 2010	187,511 190,899 202,302 209,280 216,082	245,690 242,213 247,253 247,995 248,283	433,201 433,112 449,555 457,275 464,365	884,232 870,507 886,226 887,449 886,793	807,342 794,811 809,163 810,281 809,680	1,922,243 1,892,409 1,926,578 1,929,239 1,927,808	3,613,817 3,557,727 3,621,967 3,626,969 3,624,281	1,159,952 1,141,654 1,162,599 1,164,222 1,163,340	2,110,462 2,077,171 2,115,279 2,118,232 2,116,628	3,270,414 3,218,825 3,277,878 3,282,454 3,279,968
2011 2012 2013 2014 2015	224,438 232,113 256,105 283,592 297,437	249,018 250,142 267,015 286,086 290,666	473,456 482,255 523,120 569,678 588,103	887,660 890,100 946,578 1,007,492 1,024,348	810,472 812,700 864,267 919,884 935,275	1,929,695 1,934,997 2,057,776 2,190,202 2,226,843	3,627,827 3,637,797 3,868,621 4,117,578 4,186,466	1,164,501 1,167,748 1,242,947 1,325,564 1,346,480	2,118,738 2,124,648 2,261,466 2,411,786 2,449,839	3,283,239 3,292,396 3,504,413 3,737,350 3,796,319
2016 2017 2018 2019 2020	305,643 315,871 325,093 335,004 337,629	290,889 292,063 291,928 292,189 286,160	596,532 607,934 617,021 627,193 623,789	1,020,854 1,023,691 1,021,880 1,021,620 999,725	932,084 934,675 933,021 932,783 912,792	2,219,247 2,225,415 2,221,479 2,220,913 2,173,314	4,172,185 4,183,781 4,176,380 4,175,316 4,085,831	1,341,831 1,345,603 1,343,191 1,342,842 1,313,699	2,441,380 2,448,243 2,443,856 2,443,222 2,390,198	3,783,211 3,793,846 3,787,047 3,786,064 3,703,897
2021 2022 2023 2024 2025	338,588 338,171 340,682 337,994 340,031	285,632 285,280 287,398 285,132 286,849	624,220 623,451 628,080 623,126 626,880	997,980 996,796 1,004,008 996,281 1,002,133	911,198 910,118 916,702 909,648 914,991	2,169,520 2,166,946 2,182,625 2,165,830 2,178,549	4,078,698 4,073,860 4,103,335 4,071,759 4,095,673	1,311,375 1,309,781 1,319,405 1,309,103 1,316,908	2,385,967 2,383,067 2,400,578 2,381,836 2,396,036	3,697,342 3,692,848 3,719,983 3,690,939 3,712,944
2026 2027 2028 2029 2030	338,688 335,212 334,989 337,090 330,546	285,717 282,785 282,597 284,370 278,849	624,405 617,997 617,586 621,460 609,395	998,264 988,264 987,606 993,649 974,813	911,459 902,328 901,727 907,246 890,047	2,170,138 2,148,400 2,146,969 2,160,108 2,119,159	4,079,861 4,038,992 4,036,302 4,061,003 3,984,019	1,311,759 1,298,423 1,297,563 1,305,622 1,280,516	2,386,665 2,362,404 2,360,838 2,375,502 2,329,822	3,698,424 3,660,827 3,658,401 3,681,124 3,610,338
2031 2032 2033 2034 2035	332,222 333,835 331,839 333,535 332,295	280,262 281,622 279,939 281,370 280,324	612,484 615,457 611,778 614,905 612,619	979,634 984,265 978,525 983,409 979,848	894,448 898,677 893,436 897,895 894,645	2,129,638 2,139,708 2,127,229 2,137,846 2,130,105	4,003,720 4,022,650 3,999,190 4,019,150 4,004,598	1,286,945 1,293,126 1,285,472 1,291,979 1,287,227	2,341,521 2,352,767 2,338,838 2,350,677 2,342,032	3,628,466 3,645,893 3,624,310 3,642,656 3,629,259
Total	10,750,099	10,646,924	21,397,023	39,561,393	36,366,516	95,092,611	171,020,520	44,230,294	86,833,016	131,063,310

Note: Table B-18 includes Extra Peaking Charges for additional power shown in Table 8.

TABLE B-18

## Variable OMP&R Component of Transportation Charge for Each Contractor (Dollars) Page 2 o

	İ			•	Ollais)	Aron			Page 2 of 4
					Joaquin Valley	Area			
Calendar	Water District	Empire West Side Irrigation District	Valley	Municipal and Industrial	Agricultural	County of Kings	Oak Flat Water District	Tulare Lake Basin Water Storage District	Total
Year	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1961 1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1966 1967 1968 1969 1970	0 0 68,978 56,774 69,819	0 0 5,176 101 6,811	0 0 0 0	0 0 0 0	0 0 440,922 321,387 470,866	0 0 2,355 181 0	0 0 4,760 3,338 5,595	0 0 65,680 17,956 16,550	0 0 587,871 399,737 569,641
1971 1972 1973 1974 1975	53,097 62,364 33,931 49,114 63,140	7,747 8,515 4,615 4,413 4,671	0 0 0 0	0 0 0 46,752 34,580	769,055 1,151,788 770,120 677,660 848,249	4,785 2,057 2,308 2,207 2,491	6,353 7,375 3,017 3,114 3,920	158,419 379,687 77,630 106,332 134,295	999,456 1,611,786 891,621 889,592 1,091,346
1976 1977 1978 1979 1980	70,851 26,565 108,944 107,742 89,119	5,131 1,758 938 4,861 1,943	0 0 0 0	94,653 84,875 190,675 193,697 122,020	966,820 498,624 1,616,974 2,367,376 1,736,941	2,737 3,644 4,319 5,591 4,782	4,910 2,602 6,294 13,137 7,797	100,597 43,067 24,901 433,610 150,511	1,245,699 661,135 1,953,045 3,126,014 2,113,113
1981 1982 1983 1984 1985	130,571 108,006 60,173 83,671 115,345	18,659 932 0 0 13,024	0 0 0 0	264,677 145,663 13,734 219,000 244,127	2,411,123 2,363,614 910,284 2,020,940 2,581,254	7,325 4,517 5,552 6,032 8,479	9,003 6,719 3,071 7,609 8,902	265,722 47,885 1,189 10,655 273,808	3,107,080 2,677,336 994,003 2,347,907 3,244,939
1986 1987 1988 1989 1990	234,937 197,366 189,686 282,839 221,517	5,471 10,833 16,178 15,324 7,805	0 0 0 0	375,031 530,370 523,486 676,153 853,964	4,848,805 4,425,983 4,290,999 6,119,803 4,821,183	17,299 17,028 15,655 19,895 12,206	16,760 16,741 12,028 21,254 12,297	373,240 396,268 377,558 644,203 348,301	5,871,543 5,594,589 5,425,590 7,779,471 6,277,273
1991 1992 1993 1994 1995	4,401 75,936 21,987 136,212 175,368	1,049 4,358 4,812 8,277 4,402	0 0 0 0	185,311 222,086 78,528 488,111 388,932	47,950 1,640,103 400,831 3,425,148 3,136,019	0 6,422 5,082 10,861 13,146	521 5,159 1,610 10,135 10,004	10,350 149,277 120,611 295,017 274,939	249,582 2,103,341 633,461 4,373,761 4,002,810
1996 1997 1998 1999 2000	278,571 336,773 349,723 333,381 365,558	9,446 18,931 19,658 18,740 20,549	0 0 0 0	721,790 833,000 862,461 821,572 902,506	6,143,766 7,534,395 7,788,488 7,408,981 8,158,671	23,000 25,241 26,212 24,986 27,398	15,992 25,446 26,398 25,315 27,654	1,167,045 747,754 776,507 740,221 811,665	8,359,610 9,521,540 9,849,447 9,373,196 10,314,001
2001 2002 2003 2004 2005	345,931 419,995 415,776 433,223 394,614	19,446 23,609 23,371 24,352 22,181	0 0 0 0	852,966 1,171,850 1,160,019 1,208,973 1,100,597	7,696,207 9,052,438 8,960,673 9,340,542 8,499,381	25,927 31,478 31,162 32,469 29,576	26,213 31,640 31,330 32,610 29,779	768,088 932,535 923,170 961,905 876,179	9,734,778 11,663,545 11,545,501 12,034,074 10,952,307
2006 2007 2008 2009 2010	400,099 394,142 400,968 401,502 401,215	22,490 22,155 22,539 22,569 22,553	0 0 0 0	1,116,006 1,099,262 1,118,438 1,119,939 1,119,127	8,619,052 8,488,963 8,637,876 8,649,549 8,643,207	29,987 29,540 30,052 30,092 30,070	30,180 29,745 30,244 30,284 30,263	888,360 875,133 890,287 891,474 890,838	11,106,174 10,938,940 11,130,404 11,145,409 11,137,273
2011 2012 2013 2014 2015	401,591 402,651 427,191 450,024 460,988	22,574 22,633 24,013 25,296 25,913	0 0 0 0	1,120,188 1,123,163 1,192,065 1,256,097 1,286,945	8,651,473 8,674,568 9,209,428 9,704,672 9,945,910	30,099 30,178 32,017 33,729 34,551	30,291 30,368 32,167 33,844 34,644	891,673 894,025 948,513 999,210 1,023,554	11,147,889 11,177,586 11,865,394 12,502,872 12,812,505
2016 2017 2018 2019 2020	459,465 460,699 459,917 459,801 450,287	25,827 25,897 25,853 25,846 25,311	0 0 0 0	1,282,662 1,286,130 1,283,926 1,283,609 1,256,897	9,912,611 9,939,543 9,922,390 9,919,987 9,712,628	34,436 34,529 34,470 34,461 33,748	34,533 34,624 34,566 34,558 33,860	1,020,174 1,022,914 1,021,175 1,020,919 999,793	12,769,708 12,804,336 12,782,297 12,779,181 12,512,524
2021 2022 2023 2024 2025	449,528 449,023 452,145 448,798 451,331	25,269 25,240 25,416 25,228 25,370	0 0 0 0	1,254,763 1,253,340 1,262,118 1,252,708 1,259,829	9,696,047 9,684,976 9,753,184 9,680,070 9,735,401	33,691 33,653 33,888 33,637 33,827	33,804 33,768 33,996 33,751 33,936	998,109 996,986 1,003,921 996,486 1,002,111	12,491,211 12,476,986 12,564,668 12,470,678 12,541,805
2026 2027 2028 2029 2030	449,654 445,315 445,023 447,644 439,469	25,275 25,032 25,015 25,163 24,703	0 0 0 0	1,255,120 1,242,932 1,242,119 1,249,483 1,226,513	9,698,839 9,604,189 9,597,911 9,655,138 9,476,715	33,700 33,375 33,354 33,551 32,938	33,813 33,496 33,474 33,665 33,068	998,388 988,755 988,107 993,925 975,774	12,494,789 12,373,094 12,365,003 12,438,569 12,209,180
2031 2032 2033 2034 2035	441,563 443,566 441,077 443,196 441,652	24,821 24,933 24,794 24,912 24,826	0 0 0 0	1,232,405 1,238,034 1,231,036 1,236,993 1,232,649	9,522,516 9,566,242 9,511,865 9,558,162 9,524,386	33,095 33,244 33,058 33,216 33,101	33,221 33,367 33,185 33,340 33,228	980,423 984,872 979,344 984,048 980,621	12,268,044 12,324,258 12,254,359 12,313,867 12,270,463
Total	19,691,522	1,105,553	0	52,226,655	419,561,861	1,447,692	1,473,685	43,133,239	538,640,207

TABLE B-18

## Variable OMP&R Component of Transportation Charge for Each Contractor (Dollars)

					(Dollars) Southern Call	ifornia Area				Page 3 of 4
Calendar Year	Antelope Valley-East Kern Water Agency (20)	Castaic Lake Water Agency (21)	Coachella Valley Water District (22)	Crestline- Lake Arrowhead Water Agency (23)	Desert Water Agency (24)	Littlerock Creek Irrigation District (25)	Mojave Water Agency (26)	Palmdale Water District (27)	San Bernardino Valley Municipal Water District (28)	San Gabriel Valley Municipal Water District (29)
1961 1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1966 1967 1968 1969 1970	0 0 0 0	0 0 30,401 30,627 39,429	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1971 1972 1973 1974 1975	0 780 286 15,558 99,186	34,871 47,571 28,968 28,982 28,567	0 0 102,811 100,954 108,253	0 12,786 6,895 9,891 12,758	0 0 159,535 157,742 170,111	0 4,495 3,854 4,932 6,392	0 1,516 0 221 0	0 0 0 0	0 32,107 301,444 177,172 136,067	0 0 0 6,529 53,485
1976 1977 1978 1979 1980	385,090 199,168 581,728 1,058,567 1,390,776	38,365 21,006 45,550 83,834 51,281	135,276 0 174,115 228,381 256,858	17,835 23,598 20,875 28,596 29,240	213,595 0 264,178 340,428 401,192	8,163 1,973 2,731 2,327 3,668	0 1,702 0 90,780 94,398	0 0 0 0	139,356 239,663 37,042 236 0	68,933 86,821 70,989 3,803 16,513
1981 1982 1983 1984 1985	1,480,002 920,638 334,998 490,100 821,689	111,339 131,772 (303,309) (97,976) (354,915)	274,101 291,510 173,159 275,966 413,691	33,627 27,080 10,843 19,741 34,626	430,230 459,378 273,777 437,539 657,462	23,855 0 386 15 0	90,575 229,690 0 0	0 0 0 0 32,491	254,758 125,753 (71,250) (65,520) (47,420)	57,548 188,836 (8,725) (90,282) (32,264)
1986	1,110,219	54,950	729,716	60,349	1,162,096	5,555	0	105,487	69,490	102,313
1987	1,036,262	(28,458)	680,447	64,751	1,103,087	33,027	595	160,442	39,427	47,892
1988	1,031,486	(66,449)	698,177	67,815	1,149,427	12,133	304	51,263	53,774	38,078
1989	1,741,775	180,514	982,020	97,426	1,638,721	38,373	8,980	351,923	343,439	212,174
1990	2,444,369	423,751	1,403,557	111,009	2,314,957	90,535	0	446,685	600,339	530,774
1991	286,550	(3,024)	277,125	33,951	457,075	17,702	128,428	132,724	35,364	52,153
1992	572,195	(196,468)	235,527	11,723	388,449	4,744	236,553	76,286	(25,201)	(59,346)
1993	(147,400)	(498,863)	(787,025)	(1,946)	(1,298,123)	(2,512)	(49,501)	(22,157)	(153,050)	(505,265)
1994	1,831,411	68,455	187,723	34,283	309,577	40,993	726,986	313,650	120,524	200,939
1995	645,808	(200,287)	(309,105)	6,941	(419,679)	9,251	143,952	95,069	(9,313)	(172,909)
1996	1,819,205	49,578	470,206	17,705	775,350	15,969	280,126	371,977	44,599	120,401
1997	3,045,055	785,420	588,903	104,008	971,309	114,895	851,387	864,206	637,343	734,219
1998	7,113,307	595,047	646,881	109,057	1,066,931	117,698	1,209,036	889,163	1,148,143	806,500
1999	6,617,906	502,022	571,039	102,284	941,845	109,979	1,695,427	827,238	1,236,018	711,946
2000	7,516,013	744,678	738,103	117,039	1,217,388	124,904	4,182,171	939,502	1,789,339	920,232
2001	6,964,584	660,999	627,738	108,138	1,035,363	115,741	4,177,544	870,573	1,630,492	782,637
2002	8,647,969	1,450,140	943,118	402,605	1,555,534	143,716	5,383,256	1,080,996	4,188,915	1,175,837
2003	8,551,622	1,419,341	924,129	397,779	1,524,209	142,115	5,320,502	1,068,952	4,104,564	1,152,160
2004	8,948,175	1,553,685	1,005,252	418,845	1,658,014	148,705	5,589,448	1,118,522	4,464,888	1,253,302
2005	8,060,397	1,254,079	827,416	373,442	1,364,702	133,951	5,002,719	1,007,550	3,675,020	1,031,586
2006	8,187,615	1,296,680	855,160	381,050	1,410,459	136,065	5,096,527	1,023,451	3,798,246	1,066,174
2007	8,046,977	1,247,441	830,526	375,237	1,369,830	133,729	5,015,603	1,005,872	3,688,837	1,035,463
2008	8,205,650	1,304,573	858,189	381,347	1,415,456	136,365	5,102,902	1,025,706	3,811,694	1,069,951
2009	8,220,887	1,307,528	860,557	381,835	1,419,360	136,618	5,110,424	1,027,611	3,822,210	1,072,900
2010	8,210,227	1,304,295	858,611	381,338	1,416,151	136,442	5,103,859	1,026,279	3,813,573	1,070,475
2011	8,219,099	1,308,687	859,298	381,259	1,417,283	136,590	5,105,068	1,027,388	3,816,621	1,071,332
2012	8,248,339	1,316,557	864,250	382,389	1,425,449	137,077	5,121,067	1,031,042	3,838,617	1,077,506
2013	8,816,083	1,508,022	975,819	410,353	1,609,469	146,509	5,487,003	1,102,011	4,334,162	1,216,607
2014	9,305,366	1,673,244	1,074,458	436,314	1,772,159	154,642	5,810,882	1,163,170	4,772,272	1,339,586
2015	9,597,767	1,773,982	1,130,531	449,295	1,864,641	159,500	5,994,514	1,199,720	5,021,321	1,409,494
2016	9,560,126	1,761,871	1,126,162	449,045	1,857,439	158,875	5,984,224	1,195,015	5,001,922	1,404,047
2017	9,593,001	1,771,258	1,130,873	449,774	1,865,210	159,421	5,997,545	1,199,124	5,022,846	1,409,922
2018	9,570,285	1,764,257	1,125,458	448,190	1,856,275	159,044	5,978,911	1,196,285	4,998,790	1,403,168
2019	9,570,838	1,764,269	1,125,136	448,013	1,855,744	159,053	5,977,474	1,196,355	4,997,358	1,402,766
2020	9,342,442	1,689,390	1,080,531	436,801	1,782,176	155,258	5,830,888	1,167,805	4,799,248	1,347,157
2021	9,329,958	1,683,645	1,077,545	436,057	1,777,250	155,049	5,821,466	1,166,243	4,785,976	1,343,432
2022	9,322,237	1,679,375	1,074,894	435,043	1,772,877	154,922	5,810,844	1,165,281	4,774,204	1,340,128
2023	9,393,666	1,703,936	1,090,264	439,281	1,798,232	156,110	5,863,296	1,174,209	4,842,483	1,359,294
2024	9,315,683	1,677,836	1,076,349	436,005	1,775,277	154,813	5,817,889	1,164,460	4,780,668	1,341,942
2025	9,374,750	1,698,406	1,086,587	438,393	1,792,162	155,796	5,851,426	1,171,844	4,826,138	1,354,706
2026	9,336,264	1,684,738	1,078,754	436,293	1,779,244	155,155	5,824,843	1,167,034	4,791,351	1,344,940
2027	9,231,016	1,649,759	1,058,799	431,420	1,746,331	153,406	5,759,854	1,153,877	4,702,717	1,320,060
2028	9,224,364	1,648,085	1,059,354	431,925	1,747,247	153,295	5,762,911	1,153,046	4,705,182	1,320,752
2029	9,289,456	1,669,311	1,070,650	434,572	1,765,876	154,375	5,799,881	1,161,183	4,755,352	1,334,835
2030	9,096,206	1,602,656	1,035,446	426,363	1,707,811	151,165	5,686,829	1,137,026	4,598,995	1,290,945
2031	9,143,673	1,622,606	1,045,147	428,729	1,723,811	151,954	5,717,749	1,142,959	4,642,073	1,303,037
2032	9,195,163	1,638,303	1,054,718	431,149	1,739,600	152,811	5,749,778	1,149,395	4,684,594	1,314,972
2033	9,139,092	1,617,024	1,040,536	426,846	1,716,207	151,877	5,700,011	1,142,386	4,621,599	1,297,290
2034	9,186,600	1,634,120	1,049,909	429,209	1,731,666	152,668	5,731,001	1,148,326	4,663,223	1,308,974
2035	9,149,708	1,618,069	1,046,847	429,420	1,726,617	152,055	5,725,034	1,143,714	4,649,634	1,305,159
Total	357,038,012	56,365,396	44,677,380	15,608,540	73,518,708	5,990,904	204,736,498	44,710,359	161,615,428	47,834,823

TABLE B-18

TABLE B-18 Variable OMP&R Component of Transportation Charge for Each Contractor
(Dollars)

Page 4 o

	1 0	Southern Californ	ia Araa (aantii		ollars)	Feather		1	Page 4 of 4	
	San Gorgonio Pass Water Agency	Metropolitan Water District of Southern California (31)	Ventura County Flood Control District (32)	Total (33)	City of Yuba City (34)	County of Butte (35)	Plumas County FC&WCD (36)	Total (37)	South Bay Area Future Contractor	Grand Total (39)
1961 1962 1963 1964 1965	0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0	0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0	0 36,970 57,711 74,134 142,609
1966 1967 1968 1969 1970	0 0 0 0	0 0 0 0	0 0 0 0	0 0 30,401 30,627 39,429	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	192,605 236,998 1,117,913 773,646 1,103,798
1971 1972 1973 1974 1975	0 0 0 0 0	0 848,011 1,083,333 1,872,299 3,887,151	0 0 0 0	34,871 947,266 1,687,126 2,374,280 4,501,970	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	1,513,435 3,297,201 3,174,991 3,927,060 6,060,462
1976 1977 1978 1979 1980	0 0 0 0	5,485,263 (796,688) 3,696,430 4,019,308 5,367,081	0 0 0 0	6,491,876 (222,757) 4,893,638 5,856,260 7,611,007	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	8,480,767 1,164,427 7,636,133 9,864,706 10,425,874
1981 1982 1983 1984 1985	0 0 0 0	10,504,656 7,633,402 (8,438,539) (6,594,102) (15,833,695)	0 0 0 0	13,260,691 10,008,059 (8,028,660) (5,624,519) (14,308,335)	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	17,230,457 13,415,482 (6,831,961) (2,877,740) (10,402,328)
1986 1987 1988 1989 1990	0 0 0 0 0	1,167,681 (2,877,334) (3,281,208) 9,640,239 30,812,463	0 0 0 0 0 204,754	4,567,856 260,138 (245,200) 15,235,584 39,383,193	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	11,645,112 7,183,411 6,557,417 24,672,512 48,351,548
1991 1992 1993 1994 1995	0 0 0 0	187,379 (9,228,604) (21,722,926) 3,863,480 (5,045,492)	22,630 0 0 0	1,628,057 (7,984,142) (25,188,768) 7,698,021 (5,255,764)	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	2,466,984 (5,353,454) (24,706,531) 13,314,515 (806,945)
1996 1997 1998 1999 2000	0 0 0 103,824 159,763	1,411,243 23,155,182 28,200,440 30,257,573 42,981,957	0 312,956 316,676 264,413 333,206	5,376,359 32,164,883 42,218,879 43,941,514 61,764,295	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	14,953,524 46,026,499 56,881,480 58,403,338 77,776,473
2001 2002 2003 2004 2005	135,875 204,138 240,033 282,863 250,731	35,051,861 71,331,055 69,809,910 76,388,005 61,835,685	292,193 746,187 732,086 793,604 656,407	52,453,738 97,253,466 95,387,402 103,623,308 85,473,685	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	67,512,263 116,575,263 114,524,423 123,596,394 103,630,892
2006 2007 2008 2009 2010	277,649 621,998 642,713 644,486 643,030	64,000,904 61,785,024 64,321,054 64,486,940 64,327,584	675,916 653,361 679,511 680,867 679,386	88,205,896 85,809,898 88,955,111 89,172,223 88,971,250	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	106,629,502 103,958,502 107,434,915 107,684,330 107,477,137
2011 2012 2013 2014 2015	643,544 647,251 730,809 804,681 846,674	64,467,779 64,860,645 74,080,476 82,091,865 86,880,146	681,400 685,008 772,682 847,649 894,471	89,135,348 89,635,197 101,190,005 111,246,288 117,222,056	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	107,667,759 108,225,231 120,951,553 132,173,766 138,605,449
2016 2017 2018 2019 2020	843,403 846,932 842,875 842,635 809,230	86,401,837 86,823,904 86,433,278 86,422,185 82,777,654	888,921 893,221 890,008 890,021 855,733	116,632,887 117,163,031 116,666,824 116,651,847 112,074,313	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	137,954,523 138,552,928 138,029,569 138,019,601 133,000,354
2021 2022 2023 2024 2025	806,991 805,008 816,521 806,098 813,764	82,515,197 82,302,923 83,527,242 82,321,088 83,244,220	853,099 851,143 862,397 850,439 859,861	111,751,908 111,488,879 113,026,931 111,518,547 112,668,053	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	132,643,379 132,356,024 134,042,997 132,375,049 133,645,355
2026 2027 2028 2029 2030	807,899 792,953 793,369 801,829 775,465	82,590,467 80,921,290 80,901,350 81,882,427 78,811,291	853,601 837,580 836,816 846,540 816,019	111,850,583 109,759,062 109,737,696 110,966,287 107,136,217	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	132,748,062 130,449,972 130,414,988 131,768,443 127,549,149
2031 2032 2033 2034 2035	782,728 789,897 779,275 786,295 784,003	79,701,456 80,473,972 79,377,144 80,178,029 79,645,938	825,147 832,342 822,588 830,424 823,076	108,231,069 109,206,694 107,831,875 108,830,444 108,199,274	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	128,743,783 129,814,952 128,321,512 129,421,022 128,716,213
Total	24,007,232	2,795,227,808	28,944,339	3,860,275,427	0	0	0	0	0	4,722,396,487

TABLE B-19 **Total Transportation Charge for Each Contractor** 

(Dollars)

Page 1 of 4 North Bay Area South Bay Area Central Coastal Area Alameda San Luis County Alameda Santa Clara Obispo Santa Barbara Napa County Solano FC&WCD. County Water Valley Water County County FC&WCD County WA Total Zone 7 District District Total FC&WCD FC&WCD Total Calenda Year (1)(2) (3) (4) (6) (7) (8) (9)(10)0 43.787 1961 0 0 0 0 11.750 0 0 0 0 0 55.537 1962 0 449,448 791,041 1963 151,140 190,453 1964 0 0 0 170 797 277 738 623 343 1 071 878 6.064 20.521 26 585 1,160,661 11.435 43,206 271,833 2,109,831 2,535,768 20,198 38,006 49,707 84,262 1966 18,096 0 18,096 422,196 1,415,802 69,905 41,644 498,961 1,689,128 1967 41.644 347,679 122,268 1968 128 824 0 128.824 392,186 604 069 1 988 445 2,984,700 63,565 133,233 196,798 2.086.638 1969 254.981 0 254.981 447,140 539.984 3.073.762 118,200 235,433 353.633 1970 277,819 277,819 460,871 533,235 2,206,212 3,200,318 130,918 260,050 390,968 1971 227,749 225,255 0 227,749 225,255 421 784 552,786 679,193 2,173,354 2,323,885 3 147 924 131,734 137,493 262 620 394,354 412,162 1972 509,334 3,512,412 1973 221 370 31 433 252 803 473.850 550 067 2 342 092 3.366,009 134 288 269 504 403 792 3,572,286 3,565,357 407,357 454,570 33,008 545,546 2,413,403 302,951 1975 237,756 36,366 274,122 606,408 151.619 312 514 3 875 324 260 819 766 979 1976 271 596 40 918 635 844 735 491 2 503 989 506 160 1977 293,936 45,185 49,273 339,121 323,457 599,089 653,211 714,239 2,479,892 2,789,492 3,793,220 4,135,974 270,548 277,188 527,595 543,157 798,143 820,345 274,184 693,271 1978 289,798 311,160 53,442 67,873 343,240 379,033 736,981 867,008 2,816,570 3,031,929 4,270,156 4,732,169 274,962 300,418 542,333 593,544 817,295 893,962 1979 1980 716,605 833,232 1981 319,273 642,221 87.563 435,140 795.682 880.173 2.922.225 4.598.080 961,494 1982 438 706 107,105 545 811 828 061 849 568 3 208 380 4 886 009 320 697 639 405 960 102 355,214 151,516 3,833,920 5,582,916 1,039,852 1983 506,730 846,627 902,369 349,921 689,931 1984 467 879 224.617 692 496 1 133 030 1.098.276 5 745 526 7 976 832 382 249 752 167 1 134 416 364,899 1,101,799 1,583,227 6,566,053 9,943,663 429,883 842,204 1,272,087 1986 1987 1,086,018 1,774,629 693,593 1,561,716 1,779,611 3,336,345 1,407,856 1,896,553 1,532,471 2,016,165 6,881,755 6,695,169 9,822,082 10,607,887 417,908 416,646 822,495 870,294 1,240,403 1,286,940 1988 2,235,599 2,357,452 4,593,051 1,897,560 2,215,136 6,382,245 10,494,941 451,896 1,037,403 1,489,299 1989 2.378.388 3.325.616 5.704.004 1.792.674 1.858.093 5.868.076 9.518.843 446.150 1.221.925 1.668.075 1990 2,749,126 3.439.768 6.188.894 2.228.983 2.267.360 6.687.184 11.183.527 518,661 1.292.095 1.810.756 1991 1992 2,748,292 2,555,976 3,689,294 3,535,666 6,437,586 6,091,642 1,618,224 2,003,919 4,522,517 5,388,996 7,535,254 9,103,621 520,675 578,658 1,516,651 1,510,645 2,037,326 2,089,303 1,394,513 1,710,706 1993 2 599 484 3.522.123 6.121.607 2.512.884 2.013.115 6.518.926 11.044.925 639 558 1 668 838 2 308 396 12,455,496 3,204,860 5,874,259 1994 2.716.240 2.524.644 7.296.636 793,231 2.411.629 6,263,761 2.634.216 1995 2.651.444 3 525 807 6,177,251 2 649 545 2,281,633 5.878.181 10 809 359 1.033,407 4 840 852 6,631,029 7,380,490 1996 2 726 212 3 821 107 6.547.319 2 166 688 2 120 309 10 918 026 1.923.721 13 405 770 15 329 491 1997 3,061,549 4,157,225 7,218,774 2,941,618 3,085,734 13,407,842 3,467,280 29,581,584 1998 2.951.344 4.241.501 7.192.845 2.699.726 2.820.482 8.391.092 13.911.300 3.684.969 29,439,392 33.124.361 1999 2,962,050 2,986,108 4,230,647 4,264,860 7,192,697 7,250,968 3,101,594 3,137,797 8,239,117 8,245,396 14,124,593 14,221,399 3,595,354 3,604,143 29,844,916 29,969,501 33,440,270 33,573,644 2,783,882 2,838,206 2001 2.987.834 3.102.966 8.169.651 3.595.903 29.889.318 33.485.221 4.256.715 7.244.549 2.811.809 14,084,426 14,327,573 2002 3 014 195 4,274,650 7 288 845 3 109 437 3 034 324 8 183 812 5 116 042 29 865 657 34 981 699 3,012,229 4,263,325 2003 7,275,554 3,045,678 2,976,109 8,045,203 14,066,990 5,024,810 29,699,655 34,724,465 3,031,653 3,032,312 .314.989 3,086,112 3,034,506 3,013,032 2,965,904 8,133,130 8,020,884 5,078,702 5,014,889 29,797,849 29,681,438 2004 2005 4,283,336 4,267,518 14,232,274 14,021,294 34 876 551 7,299,830 34,696,327 2006 3,043,301 7.316.991 2007 3.049.735 4,269,531 7.319.266 3.031.800 2.963,432 8.015.001 14.010.233 5.011.060 29,674,468 34,685,528 3,087,335 2008 4,302,145 7,389,480 3,132,132 3,055,041 8,233,124 14,420,297 5,156,009 29,938,247 35,094,256 2009 3 098 484 4 302 917 7 401 401 3 133 062 3 055 892 8 235 145 14 424 099 5 157 202 29 940 419 35 097 621 3,109,489 4,303,266 7,412,755 3,132,280 3,055,178 8,233,444 14,420,902 5,156,138 29,938,484 35,094,622 3,122,832 3,135,138 7,426,921 7,440,908 3,133,046 3,136,798 8,235,112 8,243,259 5,157,150 5,162,341 2011 2012 4,304,089 4,305,770 14 424 034 29 940 325 35,097,475 3,055,876 3.059.301 14,439,358 29,949,779 35,112,120 3,077,547 3,065,872 3,061,517 12,911,303 12,346,523 2013 4,230,550 7,308,097 2.794.551 2,742,433 7,374,319 4.816.196 29,320,187 34,136,383 4,207,199 2.610.356 7.050.026 7.273.071 2.686.141 29.093.105 33.789.588 2014 4.696.483 4 192 580 2015 7 254 097 2,605,030 2 481 841 6 586 394 11 673 265 4 624 180 28 960 133 33 584 313 2016 2017 3,044,626 3,027,443 7,230,162 7,210,293 2,560,089 2,519,751 2,427,332 2,388,720 6,356,040 6,221,549 4.185.536 11.343.461 4.578.019 28 874 138 33.452.157 2018 2 956 678 4 182 686 7 139 364 2 476 307 2 346 043 6 095 059 10 917 409 4 530 181 28 782 777 33 312 958 2,437,863 2,401,963 2,310,326 2,275,286 5,992,642 5,905,806 10,740,831 10,583,055 4,526,553 4,495,604 28,774,688 28,717,110 33,301,241 33,212,714 4,176,594 7.098,215 2020 2.921.621 2021 2 920 365 4 176 035 7 096 400 2 397 182 2 270 545 5 895 037 10 562 764 4 492 246 28 709 896 33 202 142 2022 2,268,549 2,274,551 10,552,159 10,577,412 4,490,102 4,499,562 28,704,553 28,721,043 33,194,655 33,220,605 2 918 584 4,175,672 7 094 256 2 395 400 5.888.210 4,146,479 2,402,055 5,900,806 2.920.152 7.066.631 2,918,475 2,904,432 4,146,008 4,137,680 7,064,483 7,042,112 2,404,508 2,388,700 2,276,659 2,261,714 5,905,290 5,868,939 10,586,457 10,519,353 4,504,760 4,481,759 28,729,771 28,687,161 33,234,531 33,168,920 2024 2025 2026 2027 2,898,379 7,030,315 7,016,466 5,858,363 5.830,898 10,499,670 2.383.954 4.369.700 32.848.494 2,257,353 2,246,400 4 124 581 4 354 550 2 891 885 2 372 160 10 449 458 28 447 664 32 802 214 4,120,295 2,369,140 2,243,493 10,435,288 4,348,159 28,432,582 2028 2,888,385 7,008,680 5,822,655 32,780,741 2029 2 886 993 4.117.994 7 004 987 2 371 585 2 245 677 5 826 954 10 444 216 4 355 187 28 442 080 32 797 267 2,870,561 5,780,105 10,356,606 28,389,582 2031 2,858,782 4,079,546 2,348,305 2,354,685 2,224,270 2,230,046 10,347,684 10,373,322 28,377,773 28,396,014 6,938,328 5,775,109 4,329,933 32,707,706 4.061,436 5.788.591 4.336.944 2032 2.848.817 6.910.253 32,732,958 2,224,350 2,222,126 2033 2,818,767 4,015,253 6,834,020 2,348,508 5,774,654 10,347,512 4,329,025 28,384,968 32,713,993 2.346.362 5.768.031 28.391.286 2034 2.756.483 3.943.658 6.700.141 10.336.519 4.333.939 32,725,225 2035 2,625,250 3,802,274 6,427,524 2,334,975 2,211,666 5,742,290 10.288.931 4,327,342 28,377,069 32,704,411 Total 147,572,674 197,431,590 345,004,264 140,809,456 139,119,047 397,091,365 677,019,868 188,714,842 1,171,477,333 1,360,192,175

TABLE B-19

Total Transportation Charge for Each Contractor
(Dollars)

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	1			•	ollars)	A			Page 2 of 4
				1	Joaquin Valley	Area			
Calendar Year	Dudley Ridge Water District (11)	Empire West Side Irrigation District (12)	Future Contractor San Joaquin Valley (13)	Municipal and Industrial (14)	Water Agency  Agricultural  (15)	County of Kings (16)	Oak Flat Water District (17)	Tulare Lake Basin Water Storage District (18)	Total (19)
1961 1962 1963 1964 1965	0 0 0 0 0	0 0 0 0 0	0 0 0 2,729 6,039	0 0 0 0 0 73,621	0 0 0 0 0	0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 2,729 79,660
1966	0	0	12,059	137,403	0	0	0	0	149,462
1967	0	0	26,300	267,762	0	0	0	0	294,062
1968	184,156	9,570	54,667	445,582	1,534,495	12,881	11,544	207,642	2,460,537
1969	179,761	9,630	87,669	525,042	2,371,780	11,494	10,545	352,282	3,548,203
1970	201,735	16,395	94,769	573,806	2,890,188	11,622	13,079	290,192	4,091,786
1971	197,945	17,354	95,791	605,592	3,790,639	16,570	14,377	445,088	5,183,356
1972	220,444	18,221	98,888	631,268	4,945,026	14,013	20,621	1,070,139	7,018,620
1973	202,971	14,293	97,649	638,883	4,870,579	14,264	11,677	404,810	6,255,126
1974	282,592	14,262	98,560	697,871	5,166,625	14,356	12,753	590,797	6,877,816
1975	349,531	15,205	106,802	715,222	6,276,510	15,367	14,436	720,215	8,213,288
1976	304,658	15,750	108,185	773,903	6,624,861	15,735	16,103	558,787	8,417,982
1977	266,645	12,860	112,656	797,468	6,792,405	17,182	13,889	505,929	8,519,034
1978	355,479	11,734	115,626	890,550	8,236,465	17,562	17,927	499,195	10,144,538
1979	385,164	15,590	114,357	895,437	9,348,912	18,827	24,823	946,442	11,749,552
1980	406,767	13,954	126,250	888,737	9,907,266	19,396	24,247	718,676	12,105,293
1981	470,934	31,919	134,332	1,080,431	11,348,309	23,609	23,002	904,557	14,017,093
1982	463,900	14,932	135,399	1,004,649	12,150,125	21,544	22,317	739,317	14,552,183
1983	636,442	16,537	149,600	1,026,766	15,342,707	38,481	30,664	427,399	17,668,596
1984	911,425	16,947	164,882	2,065,428	23,638,465	53,121	59,741	779,106	27,689,115
1985	1,112,605	90,234	187,509	2,381,664	28,228,594	68,798	71,240	2,195,006	34,335,650
1986	1,266,406	36,188	181,650	2,373,798	30,887,799	79,507	76,203	2,182,666	37,084,217
1987	1,131,311	53,311	180,471	2,828,585	29,445,407	77,491	75,467	2,253,599	36,045,642
1988	1,108,918	64,880	194,544	2,750,895	29,226,921	72,926	60,246	2,195,159	35,674,489
1989	1,140,088	51,138	188,809	2,433,200	29,192,434	65,524	68,156	2,429,169	35,568,518
1990	1,022,515	36,408	221,100	2,547,381	27,324,223	49,737	49,145	1,860,514	33,111,023
1991	602,552	25,159	219,805	2,052,140	17,464,380	26,383	26,613	1,214,359	21,631,391
1992	949,320	41,547	241,040	2,363,413	25,724,327	54,680	50,727	1,892,880	31,317,934
1993	1,166,856	55,693	266,446	2,803,420	31,427,233	74,509	69,699	2,629,826	38,493,682
1994	1,014,767	45,969	306,143	2,819,099	29,116,700	59,643	56,846	2,098,337	35,517,504
1995	1,502,191	48,080	302,227	3,471,806	35,895,373	88,606	79,074	2,733,501	44,120,858
1996	1,362,114	49,740	360,011	3,573,017	36,211,520	86,109	72,847	4,263,982	45,979,340
1997	1,556,508	47,518	370,270	3,495,395	37,889,232	61,643	86,651	2,439,804	45,947,021
1998	1,371,578	65,494	369,541	3,371,594	35,779,377	85,773	83,839	2,938,597	44,065,793
1999	1,306,149	61,819	376,029	3,232,326	34,455,870	81,236	80,084	2,794,061	42,387,574
2000	1,307,857	62,035	367,991	3,236,482	34,379,457	82,042	81,056	2,802,163	42,319,083
2001	1,296,145	61,380	368,318	3,206,648	34,098,513	81,172	80,203	2,776,215	41,968,594
2002	1,298,525	61,508	369,130	3,412,394	33,648,193	81,329	80,371	2,781,303	41,732,753
2003	1,270,899	59,954	369,555	3,334,887	33,034,925	79,262	78,358	2,719,979	40,947,819
2004	1,288,570	60,946	369,644	3,384,383	33,420,735	80,580	79,644	2,759,162	41,443,664
2005	1,265,855	59,673	369,452	3,320,829	32,931,397	78,888	77,991	2,708,829	40,812,914
2006	1,271,453	59,987	369,481	3,336,528	33,053,903	79,308	78,399	2,721,249	40,970,308
2007	1,264,678	59,606	369,451	3,317,509	32,905,220	78,800	77,906	2,706,217	40,779,387
2008	1,308,112	62,047	369,483	3,439,448	33,869,789	82,054	81,069	2,802,637	42,014,639
2009	1,308,521	62,071	369,486	3,440,600	33,878,721	82,084	81,100	2,803,546	42,026,129
2010	1,308,178	62,052	369,485	3,439,631	33,871,133	82,059	81,075	2,802,790	42,016,403
2011	1,308,512	62,070	369,488	3,440,575	33,878,488	82,084	81,100	2,803,529	42,025,846
2012	1,310,149	62,161	369,489	3,445,163	33,914,425	82,206	81,218	2,807,158	42,071,969
2013	1,210,520	56,559	369,608	3,165,279	31,685,401	74,733	73,959	2,585,880	39,221,939
2014	1,175,565	54,592	367,009	3,066,912	30,895,104	72,105	71,414	2,508,208	38,210,909
2015	1,160,667	53,754	363,736	2,951,490	30,560,915	70,987	70,327	2,475,102	37,706,978
2016	1,149,475	53,125	357,707	2,856,285	30,312,243	70,149	69,512	2,450,262	37,318,758
2017	1,145,521	52,902	343,474	2,714,822	30,223,696	69,852	69,225	2,441,478	37,060,970
2018	1,144,729	52,858	320,741	2,595,474	30,206,262	61,274	69,167	2,439,719	36,890,224
2019	1,144,626	52,852	312,257	2,535,584	30,204,138	60,757	69,160	2,439,491	36,818,865
2020	1,135,021	52,313	310,403	2,476,010	29,994,193	59,789	68,459	2,418,184	36,514,372
2021	1,134,243	52,271	309,293	2,452,034	29,977,218	59,589	68,403	2,416,467	36,469,518
2022	1,133,744	52,243	308,675	2,440,611	29,966,227	59,483	68,367	2,415,357	36,444,707
2023	1,136,915	52,421	308,263	2,445,134	30,035,682	59,691	68,597	2,422,391	36,529,094
2024	1,138,180	52,493	307,727	2,446,563	30,065,105	59,769	68,689	2,425,207	36,563,733
2025	1,131,710	52,129	307,176	2,425,951	29,920,118	59,260	68,218	2,410,840	36,375,402
2026	1,130,014	52,032	306,899	2,419,155	29,883,037	59,096	68,094	2,407,077	36,325,404
2027	1,125,628	51,787	306,232	2,403,864	29,787,045	58,726	67,776	2,397,345	36,198,403
2028	1,125,332	51,769	303,795	2,400,995	29,780,678	58,682	67,754	2,396,690	36,185,695
2029	1,127,983	51,919	303,493	2,405,337	29,838,714	58,819	67,945	2,402,570	36,256,780
2030	1,119,716	51,455	303,164	2,379,069	29,657,762	58,134	67,346	2,384,233	36,020,879
2031	1,121,832	51,573	301,584	2,366,690	29,704,211	57,900	67,499	2,388,929	36,060,218
2032	1,123,859	51,687	301,583	2,374,695	29,748,559	58,066	67,646	2,393,423	36,119,518
2033	1,121,341	51,546	301,234	2,362,714	29,693,410	57,744	67,463	2,387,839	36,043,291
2034	1,123,485	51,666	300,625	2,362,396	29,740,363	57,762	67,619	2,392,591	36,096,507
2035	1,121,921	51,578	299,890	2,348,932	29,706,110	57,412	67,506	2,389,130	36,042,479
Total	66,623,908	3,041,345	18,023,825	159,384,227	1,721,975,837	3,840,236	3,968,217	138,065,223	2,114,922,818

TABLE B-19

Total Transportation Charge for Each Contractor
(Dollars)

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					(DOIIATS) Southern Cal	ifornia Area				Page 3 of 4
Calendar	Antelope Valley-East Kern Water Agency	Castaic Lake Water Agency	Coachella Valley Water District	Crestline- Lake Arrowhead Water Agency	Desert Water Agency	Littlerock Creek Irrigation District	Mojave Water Agency	Palmdale Water District	San Bernardino Valley Municipal Water District	San Gabriel Valley Municipal t Water District
Year	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0
1963	33,153	0	0	0	0	0	0	0	51,523	0
1964	62,632	27,409	14,353	4,353	36,951	1,138	42,521	8,171	82,521	34,841
1965	118,196	52,938	24,978	7,166	40,580	2,074	77,549	15,164	134,596	35,209
1966	215,076	101,133	44,529	12,429	72,823	3,739	142,039	27,578	231,665	61,227
1967	416,139	210,574	85,730	23,376	140,772	7,256	281,002	53,826	431,696	115,106
1968	733,440	477,706	151,959	41,329	249,996	12,817	498,514	95,089	779,064	208,052
1969	1,054,222	723,439	223,992	60,899	368,790	18,596	713,658	137,373	1,200,270	320,188
1970	1,369,904	902,733	313,187	89,189	515,897	25,077	950,741	183,768	1,769,499	465,116
1971	1,695,178	1,086,061	429,483	127,617	707,691	31,635	1,240,939	229,882	2,526,418	655,791
1972	2,010,922	1,304,538	558,023	180,329	919,688	42,182	1,530,600	273,055	3,390,978	860,847
1973	2,100,722	1,320,377	692,162	182,793	1,130,890	43,251	1,605,848	285,713	3,973,493	942,249
1974	2,164,113	1,379,733	707,614	192,353	1,157,640	44,979	1,642,829	290,449	4,000,300	986,145
1975	2,340,485	1,447,553	748,375	205,078	1,225,198	48,254	1,718,377	302,634	4,160,286	1,086,446
1976	2,693,427	1,442,803	794,804	214,092	1,300,680	51,223	1,766,851	312,026	4,300,344	1,140,274
1977	2,636,018	1,511,768	690,540	225,023	1,138,240	47,104	1,843,626	327,695	4,554,276	1,204,328
1978	2,953,506	1,596,442	871,478	230,014	1,413,669	46,877	1,850,517	320,000	4,460,407	1,207,319
1979	3,506,371	1,630,789	938,940	236,914	1,511,676	48,150	1,980,830	330,770	4,422,430	1,147,529
1980	4,053,093	1,712,707	1,028,242	258,336	1,672,760	53,093	2,102,912	358,684	4,834,843	1,264,238
1981	4,378,868	1,958,148	1,098,402	269,940	1,789,059	77,511	2,241,059	389,836	5,220,109	1,351,604
1982	3,940,574	2,057,385	1,150,006	279,162	1,874,607	55,704	2,434,277	405,113	5,410,084	1,559,093
1983	5,134,687	2,337,438	1,741,751	332,092	2,821,546	69,131	2,519,086	492,928	6,021,600	1,551,813
1984	7,170,741	3,405,624	2,824,988	444,557	4,549,847	75,507	2,763,513	551,453	7,051,670	2,328,327
1985	8,943,231	3,741,162	3,625,632	541,132	5,832,154	79,557	2,897,316	735,272	7,763,506	2,382,452
1986	8,792,992	4,318,679	4,047,487	577,257	6,514,303	102,363	2,995,762	999,957	7,872,475	3,047,203
1987	8,772,009	4,150,553	3,903,074	603,221	6,362,722	211,301	3,022,806	1,022,365	9,145,043	3,018,596
1988	8,300,577	4,231,122	3,912,961	617,659	6,445,070	124,920	3,112,387	781,238	9,501,762	2,833,008
1989	8,667,598	4,104,580	3,551,606	588,096	5,906,129	170,761	3,066,767	1,444,136	8,993,187	2,939,762
1990	9,919,841	4,529,783	4,216,360	620,632	6,953,455	289,005	3,264,717	1,636,786	9,772,451	3,667,653
1991	6,424,934	3,249,389	2,725,031	569,318	4,493,718	174,594	4,045,827	1,292,288	8,937,927	3,035,303
1992	8,519,911	4,471,565	2,798,016	475,589	4,613,987	121,105	4,870,924	1,126,424	8,666,074	2,995,210
1993	8,976,934	4,091,507	3,027,080	484,632	4,991,838	158,634	4,784,331	1,355,600	9,737,240	3,392,185
1994	11,081,762	4,699,837	3,065,258	577,637	5,054,609	225,316	5,801,191	1,694,473	10,848,911	4,242,634
1995	10,600,421	5,025,643	3,784,578	535,401	6,331,394	157,171	4,878,465	1,507,929	10,152,744	3,871,486
1996	11,049,356	5,093,737	6,731,678	576,228	11,101,911	150,802	4,949,606	1,861,965	10,509,004	3,966,560
1997	13,277,948	6,103,020	6,597,848	827,134	7,772,459	371,863	6,058,289	2,785,898	13,435,311	5,141,407
1998	20,449,576	5,733,663	3,754,056	755,909	6,190,900	347,176	7,647,021	2,598,312	14,699,367	5,456,491
1999	15,950,704	5,536,754	3,494,274	712,932	3,740,071	325,410	8,566,495	2,426,068	15,195,450	4,387,372
2000	16,727,267	5,898,191	3,614,301	750,109	3,993,471	334,274	11,389,160	2,492,989	16,825,016	4,639,758
2001	16,426,741	5,954,649	3,519,142	718,907	3,775,406	328,160	11,712,494	2,447,060	16,516,762	4,439,129
2002	19,282,149	6,639,057	3,520,404	1,149,996	5,805,534	328,651	12,527,987	2,450,613	20,136,199	5,154,700
2003	18,648,551	6,439,034	3,403,056	1,128,073	5,611,985	318,120	12,232,402	2,371,394	19,750,104	5,031,777
2004	19,047,869	6,558,231	3,459,343	1,117,770	5,704,811	324,771	12,504,293	2,421,380	19,553,096	5,024,587
2005	18,530,561	6,401,721	3,374,685	1,116,327	5,565,189	316,141	12,074,507	2,356,559	19,542,652	4,982,305
2006	18,659,656	6,442,927	3,408,672	1,131,042	5,621,253	318,293	12,169,688	2,372,718	19,792,302	5,041,761
2007	18,500,964	6,369,005	3,359,282	1,098,627	5,539,779	315,650	12,080,308	2,352,859	19,210,048	4,917,380
2008	19,500,010	6,734,894	3,552,371	1,145,612	5,858,248	332,259	12,533,148	2,477,767	20,055,951	5,156,086
2009	19,512,322	6,730,585	3,570,715	1,166,154	5,888,512	332,463	12,539,463	2,479,310	20,422,917	5,228,364
2010	19,500,424	6,721,153	3,556,823	1,151,313	5,865,591	332,266	12,532,319	2,477,820	20,159,381	5,176,111
2011	19,508,280	6,731,215	3,560,251	1,154,769	5,871,249	332,397	12,533,127	2,478,804	20,225,215	5,189,147
2012	19,550,695	6,741,246	3,570,033	1,159,235	5,887,380	333,105	12,554,951	2,484,108	20,306,510	5,207,893
2013	17,228,501	5,963,183	3,132,723	1,063,320	5,152,833	295,078	11,683,115	2,198,080	18,560,812	4,692,586
2014	16,356,702	5,649,871	2,924,024	981,549	4,822,501	279,963	11,388,550	2,084,706	17,136,347	4,350,371
2015	15,998,314	5,531,664	2,890,913	1,009,396	4,767,897	274,001	11,279,973	2,039,911	17,650,056	4,423,521
2016	15,641,835	5,395,353	2,788,321	950,353	4,598,678	268,021	11,108,666	1,995,039	16,583,182	4,189,961
2017	15,354,258	5,253,775	2,744,968	954,586	4,527,190	263,065	10,931,333	1,957,984	16,661,353	4,183,206
2018	15,079,164	5,033,580	2,669,916	919,616	4,403,402	258,214	10,719,411	1,922,028	16,015,383	4,034,115
2019	14,780,518	4,834,455	2,619,092	922,400	4,319,596	252,805	10,510,932	1,882,525	15,993,121	4,001,079
2020	14,257,040	4,600,503	2,487,938	882,841	4,103,290	242,867	10,133,946	1,810,133	15,224,532	3,801,510
2021	13,990,053	4,429,606	2,365,419	827,349	3,901,218	237,286	9,860,760	1,771,344	14,163,927	3,554,990
2022	13,852,289	4,315,549	2,319,439	822,263	3,825,391	234,721	9,708,066	1,752,874	13,955,463	3,496,337
2023	13,875,218	4,324,380	2,324,795	829,835	3,834,231	234,956	9,714,662	1,755,113	14,028,805	3,507,896
2024	13,885,769	4,290,272	2,311,458	812,590	3,812,225	235,109	9,697,783	1,756,328	13,703,040	3,443,966
2025	13,714,818	4,229,796	2,271,346	805,304	3,746,068	232,238	9,606,229	1,734,833	13,562,138	3,399,274
2026	13,663,302	4,200,987	2,258,372	806,264	3,724,681	231,341	9,553,311	1,728,274	13,551,379	3,388,662
2027	13,545,471	4,147,704	2,226,856	794,043	3,672,692	229,365	9,468,200	1,713,461	13,316,818	3,331,776
2028	13,528,696	4,129,687	2,229,845	801,860	3,677,631	229,064	9,454,649	1,711,269	13,442,521	3,354,473
2029	13,578,856	4,129,430	2,238,917	805,366	3,692,589	229,888	9,480,773	1,717,504	13,506,182	3,369,834
2030	13,366,431	3,995,519	2,182,650	775,823	3,599,780	226,351	9,354,589	1,690,934	12,969,829	3,250,133
2031	13,319,638	3,953,129	2,185,973	790,723	3,605,270	225,504	9,322,766	1,684,718	13,234,205	3,297,868
2032	13,379,402	3,933,409	2,194,591	789,409	3,619,485	226,498	9,363,380	1,692,184	13,209,655	3,297,526
2033	13,243,846	3,861,834	2,155,751	769,623	3,555,415	224,222	9,271,642	1,675,132	12,870,491	3,220,228
2034	13,186,729	3,853,559	2,161,806	786,491	3,565,410	223,257	9,248,360	1,667,897	13,166,398	3,272,986
2035	13,072,682	3,796,110	2,140,592	778,767	3,530,432	221,256	9,201,255	1,653,698	13,009,988	3,235,041
Total	781,804,282	283,983,555	175,663,258	46,347,523	279,990,033	13,636,896	489,355,390	101,919,268	812,250,302	222,189,401

TABLE B-19 **Total Transportation Charge for Each Contractor** 

(Dollars)

Page 4 of 4

Southern California Area (continued) Feather River Area Metropolitan Ventura South Bay San Gorgonio Water District of County Flood Plumas Area Pass Water Southern Control City of County County Future Calendai California District Total Yuba City of Butte FC&WCD Total Contractor Grand Total Agency (30) (31)(32) (33) (34) (35) (36) (37)(38) (39) Year 0 1961 0 0 0 0 0 0 0 0 0 55,537 1062 0 688,882 773,558 55,823 1,620,422 1963 0 0 21,648 21,784 1,258,056 2,176,243 9,363 17,738 1,603,957 2,724,215 0 405 2,789,243 4,787,805 0 405 84,094 129,191 0 1965 1966 37,820 71.000 3,891,995 7,677,768 33,372 4,875,425 9.582,297 0 565 148,545 565 7.371.829 12 781 524 1967 68 052 563 563 204 922 128,385 15,288,020 18,806,980 565 279,614 1968 142,609 565 24,858,018 1969 197 819 23 098 226 214 850 28 332 322 0 0 3 196 3.196 349 609 35 915 706 30,529,578 37,675,865 15,144 46,038,603 1971 1972 39,836,038 52,794,318 341,681 421,472 49,315,560 64,821,583 16,026 17,400 16,026 17,400 376,266 401,782 58,661,235 76,409,214 0 534,631 1973 585,297 57,113,418 434,774 70,410,987 17,361 17,361 376,261 81,082,339 17.505 1974 608.726 61.616.695 454.686 75.246.262 0 17.505 399,238 86.794.254 ŏ 1975 641 821 66,592,647 477,507 80,994,661 18,433 18,433 408 459 93,928,890 1976 1977 474,684 506,157 83,474 862 17,504 18,260 17,504 18,260 431,049 423,790 97,296,214 95,335,493 665 438 68 318 216 0 0 1978 706 080 72,765,226 522 276 88 943 811 n 0 17.408 17,408 427 039 104.812.572 1979 709.868 72,493,268 525,499 89,483,034 0 0 20,606 20,606 107,130,956 1980 774.842 79,750,857 570,256 98,434,863 17,788 17,788 507,818 117,070,926 90 688 688 110 900 764 0 0 131 451 109 1981 802 339 635 201 21 221 21 221 517 317 1982 850.377 92.948.831 669,616 113,634,829 28,331 28,331 513,658 135,120,923 101.632.091 797.864 126,401,228 553,396 151.769.672 1983 949.201 0 0 16.954 16.954 138,356,227 173,245,501 171,460,092 211,823,714 18,020 19,977 209,533,157 259,179,353 1984 1985 1,069,846 1,123,366 867,792 913,433 0 0 18,020 562,186 682,463 19,977 1986 193,331,636 938.426 234.687.712 0 19.975 19.975 1.149.172 621,116 285,255,116 272,248,677 1987 1 163 806 177 990 762 899 586 220 265 844 19 976 19 976 686 043 232,592,599 19,983 1988 1,211,144 190,613,789 906,962 19,983 709,900 285,574,262 1989 1 199 647 193 619 670 933 856 235,185,795 286,647,428 20,058 20,058 20,075 769,174 821,332 288,434,467 339,783,035 1991 1,138,259 217,162,230 0 20,121 255,390,364 1992 1.362.093 196,646,759 1.023.353 237.691.010 20.168 20.168 804.698 287.118.376 1993 1,543,056 170,393,153 1,068,424 214,004,614 19,925 19,925 966,157 272,959,306 1994 1 603 123 212 083 722 1 004 940 261 983 413 0 0 20 456 20 456 975 815 320 421 305 1995 1,637,476 177,329,777 1,065,743 226,878,228 20,609 20,609 903,705 294,784,269 1,635,166 1,932,246 1,105,644 1,495,251 242,812,278 304,492,147 20,769 20,836 951,281 1,009,487 1996 184 080 621 0 20 769 322 558 504 1997 401,677,691 238,693,473 20,836 20,905 20,975 20,975 1998 1 967 564 248 305 206 2,049,235 1,915,500 319,954,476 n Ô 20 905 1.009,480 419 279 160 322,498,201 3.389.581 256.857.590 20.975 1.042.639 420,706,949 1999 0 0 273 082 336 2000 4 302 242 1 978 221 346 027 335 20 975 1.031.052 444 444 456 333,571,329 381,709,582 1,030,755 1,031,803 2001 4.228.321 261 564 681 1 939 877 0 0 20 975 20.975 431 405 849 2003 4 327 660 288 378 378 2 515 018 370 155 552 n 0 20 975 20 975 1 031 745 468 223 100 474,244,762 464,951,156 2,572,156 2,497,761 0 0 2005 285,928,748 20,975 1.031.395 4.381.265 367.068.421 20.975 2006 288.737.233 370.655.639 0 0 20.975 20.975 4.443.154 2.516.940 1.031.487 468.813.922 2007 5,095,041 5,238,283 283,995,850 2,486,154 2,649,658 365 320 947 20.975 20,975 20,975 1,031,388 463,167,724 486,358,708 2008 301,153,274 386,387,561 20,975 0 2009 2010 5,285,520 5,251,432 2,648,713 2,645,346 20,975 20,975 20,975 20,975 1,031,509 1,031,506 301 050 060 387 756 007 487 757 741 300,913,628 386,283,607 486,280,770 20,975 20,975 5,259,939 5,271,705 0 20,975 1 031 517 2012 302 216 069 2 653 936 387 936 866 488 053 713 4,965,226 265,053,458 2,297,997 342,286,912 20,975 436,874,334 2013 20.975 988,725 2014 4 752 438 248 842 528 2 156 995 321 726 545 0 20 975 20 975 962 205 414 329 816 2015 2.105.516 318.083.693 409.255.141 4,656,333 4,655,311 398,333,389 392,351,286 2016 237,827,784 2,049,684 308,053,210 0 20,410 20,410 915,231 233,206,031 20,412 20,412 875,272 2017 2.000,469 302.693.529 2018 4.560.892 225,320,709 1,930,859 292,867,289 20,410 20,410 799,793 381,947,447 4.543.114 2019 218.982.359 1.862.963 285.504.959 0 17,779 17,779 735.813 374,225,280 2020 4,419,837 207,868,064 1,772,803 271,605,304 0 5.830 5.830 715,345 359,734,835 4,263,800 4,228,796 198,793,433 191,987,838 259,871,460 252,171,621 5,003 3,615 5,003 3,615 711,555 710,911 2021 1 712 275 0 0 3/17 018 8/12 1,672,595 2023 4 236 468 191 793 429 1 680 093 252 139 881 n 0 3 6 1 5 3.615 710 291 340.247.529 189,264,621 186,497,497 249,078,266 245,612,092 337,240,905 333,429,898 2024 0 0 2025 4.168.027 1.644.524 3.611 3.611 708,408 3.610 2026 0 3 610 707 960 4 162 291 184 971 902 1 633 225 243 873 991 331 289 444 4,126,824 4,141,937 182,202,884 181,917,696 1,611,328 1,605,676 240,387,422 240,225,004 327,564,617 327,344,975 3.607 3,607 707,047 2028 3.606 3.606 705.961 0 4.151.428 182,852,075 176,487,898 241,360,064 233,529,043 328,571,450 320,299,780 2029 2030 1,607,222 1,553,479 0 3,604 3,603 3,604 3,603 704,532 703,037 4,075,627 2031 4.107.312 175.680.077 1.538.227 232.945.410 0 0 3,601 3,601 700.053 319.703.000 2032 4 106 322 175 775 066 1 532 731 233 119 658 3,600 3,600 700 431 319 959 740 172,224,558 1,504,990 3,599 3,599 315,277,158 2033 4,057,443 228,635,175 699,568 2034 4 092 569 172 944 314 1.503.651 229 673 427 0 0 3 598 3.598 695.919 316 231 336 0 0 51,404,529 20,625,155,812

316

Total

195.528.815

12,573,987,831

98.892.023

16.075.548.577

1,063,581

1,063,581

#### TABLE B-20A **Calculation of Delta Water Rates**

#### Calculation in accordance with Article 53(i) of the Monterey Amendment

(Values in millions of dollars [\$] or millions of acre-feet [AF] discounted to 1997 at 4.620 percent per annum)

Procedure		apital ( ompoi (1)		Maintena	im Operation, ince, Power and ent Component (a (2)	Total Delta Water Rate (3)		
Commencing in 1998 Total Costs of "Initial" Project Conservation Facilities to be Reimbursed and Project Water Entitlements during the Project Repayment Period.	\$3,154.91	(b	198.18 AF	\$1,964.37	(c 198.18 AF	\$5,119.28	198.18 AF	
Less, Project Power Revenues to be Realized During the Project Repayment Period.	(1,155.65)			(354.00)		(1,509.65)		
Less, Delta Water Charges Paid and Project Water Entitlements, Prior to 1998	(1,143.72)	(d	(124.40) AF	(720.39)	(124.40) AF	(1,864.11)	(124.40) AF	
Total	\$855.54		73.78 AF	\$889.98	73.78 AF	\$1,745.52	73.78 AF	
Rate Applicable in 1998	\$11.60	per a	acre-foot	\$12.06	per acre-foot	\$23.66	per acre-foot	

#### Calculation under original provisions, without the Monterey Amendment

(for Yuba City, Plumas County, Empire and Ventura)

Procedure		apital ompo (1)		Mainte and F	um Operation, nance, Power Replacement mponent (a (2)	Total Delta Water Rate (3)		
Commencing in 1998 Total Costs of "Initial" Project Conservation Facilities to be Reimbursed and Project Water Entitlements during the Project Repayment								
Period.	\$3,144.49	(b	198.18 AF	\$1,955.20	(c 198.18 AF	\$5,099.69	198.18 AF	
Less, Project Power Revenues to be Realized During the Project Repayment Period.	(1,155.65)			(354.00)		(1,509.65)		
Less, Delta Water Charges Paid and Project Water Entitlements, Prior to 1998	(1,143.72)	(d	(124.40) AF	(720.39)	(124.40) AF	(1,864.11)	(124.40) AF	
Total	\$845.12		73.78 AF	\$880.80	73.78 AF	\$1,725.92	73.78 AF	
Rate Applicable in 1998	\$11.45	per a	acre-foot	\$11.94	per acre-foot	\$23.39	per acre-foot	

a) Considering that all operating costs of Project Conservation Facilities will not vary with annual amounts of Project waterdelivered, and therefore are properly classified

as "Minimum" OMP&R Costs.

b) Including net credits of \$4,850,000 for settlements as to the magnitude of Project Capital costs incurred prior to December 31, 1960, and net credits of \$6,678,320 for settlement as to the magnitude of Project Capital costs incurred during the 1961 through 1978 period.

c) Includes conservation power costs and credits at San Luis.

d) Applying all Delta Water Charges paid prior to 1970 to reimburse Capital costs (the charge was not divided into components until 1970).

### TABLE B-20B Delta Water Rates by Facility (Dollars per Acre-foot)

	Capital Cost Component	Minimum Operation, Maintenance, Power and Replacement Component	Total Delta Water Rate
Item	(1)	(2)	(3)
Initial Conservation Facilities			
Oroville Division			
Water Supply and power costs (a Less, Oroville Power Revenues	26.04 -15.66	13.34 -4.80	39.38 -20.46
Subtotal	10.38	8.54	18.92
Delta Facilities (b California Aqueduct, portion	7.33	6.80	14.13
Reach 1	1.78	2.61	4.39
Reach 2A	1.00	0.47	1.47
Reach 2B Reach 3	0.50 0.36	0.20 0.13	0.70 0.49
Reach 3	0.36	0.13	0.49
Subtotal	3.64	3.41	7.05
San Luis Facilities Planning and preoperating costs	5.04	3.07	8.11
through 1996	1.42	0.00	1.42
Less, Capital Cost Credits	-0.71	0.00	-0.71
Less, Delta Water Charges paid prior to 1998	-15.50	-9.76	-25.26
Rate applicable in 1998	11.60	12.06	23.66

a) Includes revenue received from non-contractors.
b) Includes (1) Delta Facility planning costs, (2) Delta Studies costs, and (3) Suisun Marsh Facilities Costs.

TABLE B-21 Total Delta Water Charge for Each Contractor
(Dollars)

	(Dollars)  North Bay Area  South Bay Area  Central Coastal Area										
		North Bay Are	a		South E	Bay Area			9		
Calendar Year	Napa County FC&WCD (1)	Solano County WA (2)	Total (3)	Alameda County FC&WCD, Zone 7 (4)	Alameda County Water District (5)	Santa Clara Valley Water District (6)	Total (7)	San Luis Obispo County FC&WCD (8)	Santa Barbara County FC&WCD (9)	Total (10)	
1964	0	0	0	0	0	0	0	0	0	0	
1965 1966	0	0	0	0	0	0	0	0	0	0	
1967 1968 1969 1970	0 0 0 0	0 0 0 0	0 0 0 0	14,000 19,156 30,324 80,908	50,050 29,701 44,096 107,730	177,100 193,245 215,483 585,200	241,150 242,102 289,903 773,838	0 0 0 0	0 0 0 0	0 0 0 0	
1971 1972 1973 1974 1975	0 0 0 0	0 0 0 0	0 0 0 0	57,320 99,668 120,880 137,684 146,204	123,080 143,877 167,099 182,339 187,324	637,120 707,328 782,167 818,664 804,123	817,520 950,873 1,070,146 1,138,687 1,137,651	0 0 0 0 0	0 0 0 0	0 0 0 0	
1976 1977 1978 1979 1980	0 0 0 0	0 0 0 0 18,325	0 0 0 0 18,325	168,489 172,931 206,378 237,771 272,717	208,652 208,645 243,231 273,208 307,426	862,036 827,062 926,594 1,005,955 1,090,867	1,239,177 1,208,638 1,376,203 1,516,934 1,671,010	0 0 0 0 12,396	0 0 0 0 3,479	0 0 0 0 15,875	
1981 1982 1983 1984 1985	0 0 0 0	25,440 34,917 12,035 22,453 22,001	25,440 34,917 12,035 22,453 22,001	415,564 457,988 316,703 334,587 381,970	469,768 519,053 359,775 380,914 435,728	1,589,984 1,679,289 1,114,795 1,132,448 1,244,939	2,475,316 2,656,330 1,791,273 1,847,949 2,062,637	18,068 38,166 38,004 57,909 106,103	10,414 99,788 68,902 105,498 192,937	28,482 137,954 106,906 163,407 299,040	
1986 1987 1988 1989 1990	35,358 0 88,878 102,688 112,723	21,767 22,984 150,466 305,328 355,132	57,125 22,984 239,344 408,016 467,855	423,378 430,024 464,114 513,853 534,787	485,372 493,786 533,731 591,760 616,676	1,330,615 1,304,900 1,361,400 1,491,833 1,537,512	2,239,365 2,228,710 2,359,245 2,597,446 2,688,975	151,206 185,355 239,792 331,518 417,802	275,347 336,664 436,607 602,402 760,166	426,553 522,019 676,399 933,920 1,177,968	
1991 1992 1993 1994 1995	129,296 158,879 172,457 177,824 203,738	395,515 489,808 530,778 546,610 713,497	524,811 648,687 703,235 724,434 917,235	603,028 729,545 771,894 778,647 874,946	681,067 808,579 840,958 817,579 874,946	1,667,194 1,945,453 1,990,673 1,946,615 2,083,205	2,951,289 3,483,577 3,603,525 3,542,841 3,833,097	443,403 506,628 507,825 486,654 520,801	806,745 921,780 923,957 885,437 947,567	1,250,148 1,428,408 1,431,782 1,372,091 1,468,368	
1996 1997 1998 1999 2000	213,506 250,558 277,026 291,694 308,727	774,152 866,141 915,772 926,654 937,300	987,658 1,116,699 1,192,798 1,218,348 1,246,027	901,129 1,041,633 1,088,233 1,088,233 1,088,233	860,168 951,056 993,604 993,604 993,604	2,048,020 2,264,420 2,365,725 2,365,725 2,365,725	3,809,317 4,257,109 4,447,562 4,447,562 4,447,562	512,005 566,105 591,431 591,431 591,431	931,562 1,029,994 922,301 1,076,073 1,076,073	1,443,567 1,596,099 1,513,732 1,667,504 1,667,504	
2001 2002 2003 2004 2005	323,276 335,578 350,127 364,322 378,516	948,182 959,065 969,947 980,593 981,776	1,271,458 1,294,643 1,320,074 1,344,915 1,360,292	1,088,233 1,088,233 1,088,233 1,088,233 1,088,233	993,604 993,604 993,604 993,604	2,365,725 2,365,725 2,365,725 2,365,725 2,365,725	4,447,562 4,447,562 4,447,562 4,447,562 4,447,562	591,431 591,431 591,431 591,431 591,431	1,076,073 1,076,073 1,076,073 1,076,073 1,076,073	1,667,504 1,667,504 1,667,504 1,667,504 1,667,504	
2006 2007 2008 2009 2010	389,162 402,173 417,550 430,562 443,573	982,959 984,141 985,324 986,507 987,690	1,372,121 1,386,314 1,402,874 1,417,069 1,431,263	1,088,233 1,088,233 1,088,233 1,088,233 1,088,233	993,604 993,604 993,604 993,604	2,365,725 2,365,725 2,365,725 2,365,725 2,365,725	4,447,562 4,447,562 4,447,562 4,447,562 4,447,562	591,431 591,431 591,431 591,431 591,431	1,076,073 1,076,073 1,076,073 1,076,073 1,076,073	1,667,504 1,667,504 1,667,504 1,667,504 1,667,504	
2011 2012 2013 2014 2015	458,951 471,962 487,339 502,716 518,094	988,873 990,056 991,239 992,421 993,604	1,447,824 1,462,018 1,478,578 1,495,137 1,511,698	1,088,233 1,088,233 1,088,233 1,088,233 1,088,233	993,604 993,604 993,604 993,604	2,365,725 2,365,725 2,365,725 2,365,725 2,365,725	4,447,562 4,447,562 4,447,562 4,447,562 4,447,562	591,431 591,431 591,431 591,431 591,431	1,076,073 1,076,073 1,076,073 1,076,073 1,076,073	1,667,504 1,667,504 1,667,504 1,667,504 1,667,504	
2016 2017 2018 2019 2020	532,288 546,482 560,677 574,871 589,065	993,604 993,604 993,604 993,604 993,604	1,525,892 1,540,086 1,554,281 1,568,475 1,582,669	1,088,233 1,088,233 1,088,233 1,088,233 1,088,233	993,604 993,604 993,604 993,604	2,365,725 2,365,725 2,365,725 2,365,725 2,365,725	4,447,562 4,447,562 4,447,562 4,447,562 4,447,562	591,431 591,431 591,431 591,431 591,431	1,076,073 1,076,073 1,076,073 1,076,073 1,076,073	1,667,504 1,667,504 1,667,504 1,667,504 1,667,504	
2021 2022 2023 2024 2025	591,431 591,431 591,431 591,431 591,431	993,604 993,604 993,604 993,604 993,604	1,585,035 1,585,035 1,585,035 1,585,035 1,585,035	1,088,233 1,088,233 1,088,233 1,088,233 1,088,233	993,604 993,604 993,604 993,604	2,365,725 2,365,725 2,365,725 2,365,725 2,365,725	4,447,562 4,447,562 4,447,562 4,447,562 4,447,562	591,431 591,431 591,431 591,431 591,431	1,076,073 1,076,073 1,076,073 1,076,073 1,076,073	1,667,504 1,667,504 1,667,504 1,667,504 1,667,504	
2026 2027 2028 2029 2030	591,431 591,431 591,431 591,431 591,431	993,604 993,604 993,604 993,604	1,585,035 1,585,035 1,585,035 1,585,035 1,585,035	1,088,233 1,088,233 1,088,233 1,088,233 1,088,233	993,604 993,604 993,604 993,604	2,365,725 2,365,725 2,365,725 2,365,725 2,365,725	4,447,562 4,447,562 4,447,562 4,447,562 4,447,562	591,431 591,431 591,431 591,431 591,431	1,076,073 1,076,073 1,076,073 1,076,073 1,076,073	1,667,504 1,667,504 1,667,504 1,667,504 1,667,504	
2031 2032 2033 2034 2035	591,431 591,431 591,431 591,431 591,431	993,604 993,604 993,604 993,604 993,604	1,585,035 1,585,035 1,585,035 1,585,035 1,585,035	1,088,233 1,088,233 1,088,233 1,088,233 1,088,233	993,604 993,604 993,604 993,604	2,365,725 2,365,725 2,365,725 2,365,725 2,365,725	4,447,562 4,447,562 4,447,562 4,447,562 4,447,562	591,431 591,431 591,431 591,431 591,431	1,076,073 1,076,073 1,076,073 1,076,073 1,076,073	1,667,504 1,667,504 1,667,504 1,667,504 1,667,504	
Total	20,472,101	42,681,532	63,153,633	53,091,074	50,754,326	127,263,789	231,109,189	27,614,118	50,076,248	77,690,366	

TABLE B-21 Total Delta Water Charge for Each Contractor
(Dollars)

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	1			,	oliars)				rage 2 01 4
				San	Joaquin Valley	Area			
		- · w .	Future	Kern County	Water Agency			Tulare Lake	
	Dudley Ridge	Empire West Side Irrigation	Contractor San Joaquin	Municipal and		County of	Oak Flat	Basin Water Storage	
Calamdan	Water District	District	Valley	Industrial	Agricultural	Kings	Water District	District	Total
Calendar Year	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
7001	(11)	. ,	(10)	, ,	(10)	(10)	(11)	(70)	(10)
1964 1965	0	0	0 0	0 0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0
1968 1969	40,695 61,267	10,469 3,281	0 0	0 0	165,522 337,686	3,177 4,200	8,073 8,805	98,608 102,478	326,544 517,717
1970	104,405	19,950	ő	Ö	964,915	8,645	17,290	228,095	1,343,300
1971	129,596	21,720	0	0	1,377,772	9,412	20,272	264,260	1,823,032
1972 1973	160,756 195,541	24,113 26,664	0 0	0 386,638	2,175,835 2,373,167	11,253 13,333	43,131 27,553	905,057 373,307	3,320,145 3,396,203
1974	224,202	27,909	0	446,545	2,781,595	13,954	29,770	445,138	3,969,113
1975	329,688	27,413	0	481,560	3,041,048	14,620	33,702	827,591	4,755,622
1976 1977	414,245 312,532	29,388 28,195	0 0	549,549 569,545	3,931,785 4,071,218	15,673 15,977	35,966 40,289	877,151 626,210	5,853,757 5,663,966
1978	342,208	31,588	0	674,939	4,950,959	20,006	41,065	666,516	6,727,281
1979 1980	395,523 555,341	34,294 37,679	0 0	772,757 881,371	5,901,986 6,984,026	22,863 27,272	45,725 70,658	771,613 933,481	7,944,761 9,489,828
1981	740,789	54,204	0	1,351,487	11,140,730	41,556	77,692	1,373,168	14,779,626
1982	782,396	57,248	0	1,518,993	12,703,436	47,707	85,873	1,530,443	16,726,096
1983 1984	543,462 580,379	38,004 13,572	0 0	1,057,789 1,333,200	9,141,315 9,741,623	35,471 39,893	58,273 61,770	78,506 756,132	10,952,820 12,526,569
1985	667,740	42,441	0	1,540,611	11,403,920	48,100	69,320	644,383	14,416,515
1986	745,447	45,362	0	1,714,679	12,925,113	55,946	77,115	1,469,725	17,033,387
1987 1988	762,180 827,669	44,485 46,411	0 0	1,766,065 1,916,790	13,410,817 14,707,763	59,314 61,882	77,108 83,540	1,503,601 1,633,680	17,623,570 19,277,735
1989	921,621	49,728	0	2,125,033	16,312,361	66,304	92,825	1,821,693	21,389,565
1990	964,288	50,136	0	1,998,766	17,276,959	66,848	95,259	1,980,383	22,432,639
1991 1992	1,023,374 1,169,299	53,208 60,795	0 0	2,121,239 2,727,688	18,335,590 20,646,125	70,944 81,061	101,096 115,511	2,101,729 2,401,419	23,807,180 27,201,898
1993	1,172,060	60,939	0	2,734,129	20,694,874	81,252	115,784	2,407,089	27,266,127
1994 1995	1,123,198 1,202,009	58,398 62,497	0 0	2,156,809 2,803,995	20,295,455 21,223,694	77,865 83,328	110,957 118,743	2,306,739 2,468,598	26,129,421 27,962,864
1996	623,497	61,441	0	2,756,635	20,237,064	81,921	102,219	2,426,904	26,289,681
1997	1,208,521	67,162	0	2,708,246	22,488,635	90,577	129,072	2,683,338	29,375,551
1998 1999	1,262,587 1,262,587	70,175 70,175	0	2,829,407 2,829,407	22,903,290 22,903,290	94,629 94,629	134,846 134,846	2,803,384 2,803,384	30,098,318 30,098,318
2000	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2001	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2002 2003	1,262,587 1,262,587	70,175 70,175	0 0	2,829,407 2,829,407	22,903,290 22,903,290	94,629 94,629	134,846 134,846	2,803,384 2,803,384	30,098,318 30,098,318
2004 2005	1,262,587 1,262,587	70,175	0	2,829,407 2,829,407	22,903,290 22,903,290	94,629 94,629	134,846	2,803,384 2,803,384	30,098,318 30,098,318
		70,175					134,846		
2006 2007	1,262,587 1,262,587	70,175 70.175	0 0	2,829,407 2,829,407	22,903,290 22,903,290	94,629 94,629	134,846 134,846	2,803,384 2,803,384	30,098,318 30,098,318
2008	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846 134,846	2,803,384	30,098,318
2009 2010	1,262,587 1,262,587	70,175 70,175	0 0	2,829,407 2,829,407	22,903,290 22,903,290	94,629 94,629	134,846	2,803,384 2,803,384	30,098,318 30,098,318
2011	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2012	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2013 2014	1,262,587 1,262,587	70,175 70,175	0 0	2,829,407 2,829,407	22,903,290 22,903,290	94,629 94,629	134,846 134,846	2,803,384 2,803,384	30,098,318 30,098,318
2015	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2016	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2017 2018	1,262,587 1,262,587	70,175 70,175	0 0	2,829,407 2,829,407	22,903,290 22,903,290	94,629 94,629	134,846 134,846	2,803,384 2,803,384	30,098,318 30,098,318
2019 2020	1,262,587 1,262,587	70,175 70,175	0 0	2,829,407 2,829,407	22,903,290 22,903,290	94,629 94,629	134,846 134,846	2,803,384 2.803,384	30,098,318 30,098,318
						,		,,	
2021 2022	1,262,587 1,262,587	70,175 70,175	0 0	2,829,407 2,829,407	22,903,290 22,903,290	94,629 94,629	134,846 134,846	2,803,384 2,803,384	30,098,318 30,098,318
2023 2024	1,262,587 1,262,587	70,175 70,175	0	2,829,407 2,829,407	22,903,290 22,903,290	94,629 94,629	134,846 134,846	2,803,384 2,803,384	30,098,318 30,098,318
2025	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2026	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2027 2028	1,262,587 1,262,587	70,175 70,175	0 0	2,829,407 2,829,407	22,903,290 22,903,290	94,629 94,629	134,846 134,846	2,803,384 2,803,384	30,098,318 30,098,318
2029	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2030	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2031 2032	1,262,587 1,262,587	70,175 70,175	0 0	2,829,407 2,829,407	22,903,290 22,903,290	94,629 94,629	134,846 134,846	2,803,384 2,803,384	30,098,318 30,098,318
2033	1,262,587	70,175	0	2,829,407	22,903,290	94,629	134,846	2,803,384	30,098,318
2034 2035	1,262,587 1,262,587	70,175 70,175	0 0	2,829,407 2,829,407	22,903,290 22,903,290	94,629 94,629	134,846 134,846	2,803,384 2,803,384	30,098,318 30,098,318
Total	66,302,234	3,855,344	0	146,612,524	1,182,068,008	4,866,256	7,118,604	143,235,627	1,554,058,597
i Jiai	00,002,204	0,000,077	U	. 70,012,027	.,102,000,000	7,000,200	7,170,007	. 70,200,021	1,004,000,007

TABLE B-21 Total Delta Water Charge for Each Contractor
(Dollars)

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	Ι				(Dollars)	(:f:- A				Page 3 of 4
	Antelope Valley- East Kern Water Agency	Castaic Lake Water Agency	Coachella Valley Water District	Crestline- Lake Arrowhead Water Agency	Southern Ca.  Desert Water Agency	Littlerock Creek Irrigation District	Mojave Water Agency	Palmdale Water Distric	San Bernardino Valley Municipal t Water District	San Gabriel Valley Municipal
Calendar Year	(20)	(21)	(22)	(23	(24)	(25)	(26)	(27)	(28)	(29)
1964	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0
1966 1967 1968 1969 1970	0 0 0 0	0 0 13,060 17,804 37,905	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1971	0	48,508	0	0	0	0	0	0	0	0
1972	160,756	74,751	41,797	4,662	64,303	1,367	67,518	13,021	369,739	85,202
1973	222,207	107,163	51,552	7,279	79,994	2,577	95,104	26,131	54,908	14,338
1974	279,090	143,266	59,539	10,791	93,030	3,721	121,869	39,631	465,150	114,427
1975	319,822	166,307	63,964	13,250	100,515	4,752	140,722	50,989	479,733	119,705
1976	431,018	207,673	74,449	17,045	117,550	6,269	174,366	67,591	538,772	137,142
1977	469,922	226,502	79,144	19,079	122,180	6,861	189,848	77,255	540,410	139,097
1978	600,180	274,819	97,313	24,428	147,413	9,687	236,913	98,345	631,768	165,313
1979	720,173	320,077	115,033	29,836	171,470	11,889	284,640	117,285	714,457	189,760
1980	857,818	376,845	134,920	35,949	210,736	14,256	337,177	138,590	811,952	215,694
1981	1,355,100	592,631	218,713	57,637	343,292	22,946	534,813	211,396	1,237,658	330,644
1982	1,551,434	664,082	254,298	66,408	400,739	26,335	313,057	235,100	1,364,422	364,482
1983	1,110,994	472,521	184,283	47,759	291,367	19,002	434,517	163,925	943,775	252,096
1984	450,405	509,602	202,914	52,247	321,718	20,719	472,282	174,500	1,003,760	266,383
1985	565,881	591,346	240,344	61,540	381,970	24,474	551,734	200,605	1,152,983	308,405
1986	635,066	659,259	275,347	70,160	438,498	27,822	625,994	223,785	1,285,253	350,799
1987	652,450	676,176	288,131	73,104	467,095	29,064	648,002	228,654	1,319,729	364,779
1988	711,641	742,582	319,496	80,756	525,996	32,024	711,641	248,146	1,438,752	402,232
1989	2,083,593	830,453	362,565	91,333	605,021	36,301	803,932	276,155	1,607,864	454,180
1990	2,207,667	869,029	386,049	96,930	636,731	38,438	848,974	289,119	1,696,277	481,308
1991	2,454,678	961,298	409,704	102,869	675,746	40,793	900,994	306,835	1,819,725	510,800
1992	2,804,695	1,098,371	468,125	117,538	772,102	46,610	1,029,469	350,587	2,079,203	583,636
1993	2,811,318	1,100,964	469,230	117,815	773,925	46,720	1,031,900	351,415	2,084,113	585,014
1994	2,694,116	1,055,065	449,668	112,905	741,661	44,772	988,880	336,766	1,997,227	560,625
1995	2,883,156	1,129,097	481,220	120,826	793,702	47,914	1,058,269	360,394	2,137,369	599,963
1996	2,834,460	1,110,027	473,093	118,785	780,296	47,104	1,040,394	354,307	2,101,269	589,830
1997	3,133,957	1,227,316	523,081	131,336	862,744	52,082	1,150,325	391,745	2,274,440	652,153
1998	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
1999	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2000	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2001	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2002	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2003	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2004	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2005	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2006	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2007	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2008	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2009	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2010	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2011	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2012	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2013	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2014	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2015	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2016	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2017	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2018	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2019	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2020	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2021	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2022	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2023	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2024	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2025	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2026	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2027	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2028	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2029	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2030	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2031	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2032	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2033	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2034	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
2035	3,274,163	1,282,223	546,482	137,212	901,341	54,412	1,793,219	409,270	2,427,233	681,329
Total	159,419,791	65,028,973	27,490,288	6,896,323	45,170,752	2,732,155	82,935,656	20,884,532	124,385,562	34,728,509

TABLE B-21 Total Delta Water Charge for Each Contractor
(Dollars)

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	So	outhern Californi	a Area (conti	nued)	(Dollars) Feather River Area					Page 4 of 4
Calendar Year	San Gorgonio Pass Water Agency (30)	Metropolitan Water District of Southern California (31)	Ventura County Flood Control District (32)	Total (33)	City of Yuba City (34)	County of Butte (35)	Plumas County FC&WCD (36)	Total (37)	South Bay Area Future Contractor (38)	Grand Total (39)
1964 1965	0	0	0	0	0	0	0	0	0	0
1966 1967 1968 1969 1970	0 0 0 0	0 0 0 0	0 0 0 0	0 0 13,060 17,804 37,905	0 0 0 0	0 0 1,050 1,225 3,848	0 0 875 929 1,995	0 0 1,925 2,154 5,843	0 0 0 0	0 241,150 583,631 827,578 2,160,886
1971 1972 1973 1974 1975	0 0 0 0	0 2,043,211 2,317,893 4,231,933 5,073,286	0 0 0 0	48,508 2,926,327 2,979,146 5,562,447 6,533,045	0 0 0 0	4,546 4,929 7,059 8,336 9,416	3,186 3,778 4,444 4,931 5,117	7,732 8,707 11,503 13,267 14,533	0 0 0 0	2,696,792 7,206,052 7,456,998 10,683,514 12,440,851
1976 1977 1978 1979 1980	0 0 0 0 84,294	6,422,167 7,104,278 9,016,389 10,935,192 13,102,796	0 0 0 0 12,396	8,194,042 8,974,576 11,302,568 13,609,812 16,333,423	0 0 0 0	7,004 16,917 12,635 16,575 19,834	5,780 5,827 6,844 7,773 8,801	12,784 22,744 19,479 24,348 28,635	0 0 0 0	15,299,760 15,869,924 19,425,531 23,095,855 27,557,096
1981 1982 1983 1984 1985	140,930 167,929 124,148 138,982 166,935	20,910,099 23,998,560 17,203,307 18,766,458 22,050,974	36,136 57,248 50,672 64,344 84,882	25,991,995 29,464,094 21,298,366 22,444,314 26,382,073	0 0 0 20,590 24,050	21,682 16,117 15,202 15,442 16,976	13,370 14,694 10,134 10,681 12,166	35,052 30,811 25,336 46,713 53,192	0 0 0 0	43,335,911 49,050,202 34,186,736 37,051,405 43,235,458
1986 1987 1988 1989 1990	195,056 207,598 233,604 268,530 289,119	25,089,658 26,095,043 28,781,238 32,505,376 33,616,369	120,965 148,284 201,116 265,215 334,242	29,997,662 31,198,109 34,429,224 40,190,518 41,790,252	31,753 37,071 46,722 61,184 63,506	18,145 17,794 18,565 19,891 20,055	13,457 13,642 14,852 16,576 17,381	63,355 68,507 80,139 97,651 100,942	0 0 0 0	49,817,447 51,663,899 57,062,086 65,617,116 68,658,631
1991 1992 1993 1994 1995	306,835 350,587 351,415 336,766 360,394	35,676,185 40,763,329 40,859,579 39,156,173 41,903,674	354,722 405,303 406,260 389,323 416,641	44,521,184 50,869,555 50,989,668 48,863,947 52,292,619	170,267 194,545 195,005 186,875 199,987	21,283 24,318 24,376 23,360 24,999	19,155 22,697 23,563 23,360 26,040	210,705 241,560 242,944 233,595 251,026	0 0 0 0	73,265,317 83,873,685 84,237,281 80,866,329 86,725,209
1996 1997 1998 1999 2000	0 0 47,314 70,972 94,629	41,195,923 45,548,810 47,586,550 47,586,550 47,586,550	409,604 447,746 467,833 467,833 467,833	51,055,092 56,395,735 59,608,581 59,632,239 59,655,896	196,610 214,918 224,560 224,560 224,560	24,576 27,173 28,389 28,389 28,389	26,624 30,223 32,748 33,918 35,321	247,810 272,314 285,697 286,867 288,270	0 0 0 0	83,833,125 93,013,507 97,146,688 97,350,838 97,403,577
2001 2002 2003 2004 2005	94,629 118,286 141,943 153,772 165,601	47,586,550 47,586,550 47,586,550 47,586,550 47,586,550	467,833 467,833 467,833 467,833 467,833	59,655,896 59,679,553 59,703,210 59,715,039 59,726,868	224,560 224,560 224,560 224,560 224,560	650,574 650,574 650,574 650,574 650,574	36,725 38,128 39,532 40,935 42,339	911,859 913,262 914,666 916,069 917,473	0 0 0 0	98,052,597 98,100,842 98,151,334 98,189,407 98,218,017
2006 2007 2008 2009 2010	177,429 409,270 409,270 409,270 409,270	47,586,550 47,586,550 47,586,550 47,586,550 47,586,550	467,833 467,833 467,833 467,833 467,833	59,738,696 59,970,537 59,970,537 59,970,537 59,970,537	224,560 224,560 224,560 224,560 224,560	650,574 650,574 650,574 650,574 650,574	43,976 45,614 47,251 48,889 50,526	919,110 920,748 922,385 924,023 925,660	0 0 0 0	98,243,311 98,490,983 98,509,180 98,525,013 98,540,844
2011 2012 2013 2014 2015	409,270 409,270 409,270 409,270 409,270	47,586,550 47,586,550 47,586,550 47,586,550 47,586,550	467,833 467,833 467,833 467,833	59,970,537 59,970,537 59,970,537 59,970,537 59,970,537	224,560 224,560 224,560 224,560 224,560	650,574 650,574 650,574 650,574 650,574	52,397 54,269 56,374 58,479 60,818	927,531 929,403 931,508 933,613 935,952	0 0 0 0	98,559,276 98,575,342 98,594,007 98,612,671 98,631,571
2016 2017 2018 2019 2020	409,270 409,270 409,270 409,270 409,270	47,586,550 47,586,550 47,586,550 47,586,550 47,586,550	467,833 467,833 467,833 467,833 467,833	59,970,537 59,970,537 59,970,537 59,970,537 59,970,537	224,560 224,560 224,560 224,560 224,560	650,574 650,574 650,574 650,574 650,574	63,157 63,157 63,157 63,157 63,157	938,291 938,291 938,291 938,291 938,291	0 0 0 0	98,648,104 98,662,298 98,676,493 98,690,687 98,704,881
2021 2022 2023 2024 2025	409,270 409,270 409,270 409,270 409,270	47,586,550 47,586,550 47,586,550 47,586,550 47,586,550	467,833 467,833 467,833 467,833 467,833	59,970,537 59,970,537 59,970,537 59,970,537 59,970,537	224,560 224,560 224,560 224,560 224,560	650,574 650,574 650,574 650,574 650,574	63,157 63,157 63,157 63,157 63,157	938,291 938,291 938,291 938,291 938,291	0 0 0 0	98,707,247 98,707,247 98,707,247 98,707,247 98,707,247
2026 2027 2028 2029 2030	409,270 409,270 409,270 409,270 409,270	47,586,550 47,586,550 47,586,550 47,586,550 47,586,550	467,833 467,833 467,833 467,833 467,833	59,970,537 59,970,537 59,970,537 59,970,537 59,970,537	224,560 224,560 224,560 224,560 224,560	650,574 650,574 650,574 650,574 650,574	63,157 63,157 63,157 63,157 63,157	938,291 938,291 938,291 938,291 938,291	0 0 0 0	98,707,247 98,707,247 98,707,247 98,707,247 98,707,247
2031 2032 2033 2034 2035	409,270 409,270 409,270 409,270 409,270	47,586,550 47,586,550 47,586,550 47,586,550 47,586,550	467,833 467,833 467,833 467,833 467,833	59,970,537 59,970,537 59,970,537 59,970,537 59,970,537	224,560 224,560 224,560 224,560 224,560	650,574 650,574 650,574 650,574 650,574	63,157 63,157 63,157 63,157 63,157	938,291 938,291 938,291 938,291 938,291	0 0 0 0	98,707,247 98,707,247 98,707,247 98,707,247 98,707,247
Total	16,656,527	2,402,656,800	21,982,753	3,010,968,621	10,176,363	23,318,585	2,450,274	35,945,222	0	4,972,925,628

## Water System Revenue Bond Surcharge for Each Contractor (Dollars)

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	1	North Bay Area			(Dollars	) Bay Area		C	Page 1 01 4	
	Napa County FC&WCD	Solano County WA	Total	Alameda County FC&WCD, Zone 7	Alameda County Water District	Santa Clara	Total	San Luis Obispo County FC&WCD	entral Coastal A Santa Barbara County FC&WCD	Total
Calendar Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1971 1972 1973 1974 1975	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1976 1977 1978 1979 1980	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1981 1982 1983 1984 1985	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1986 1987 1988 1989 1990	0 0 29,131 48,804 41,166	0 0 40,505 69,621 60,482	0 0 69,636 118,425 101,648	0 0 25,436 43,343 38,407	0 0 30,176 51,681 51,185	0 0 100,035 170,303 149,440	0 0 155,647 265,327 239,032	0 0 13,126 26,828 27,956	0 0 24,392 49,634 51,795	0 0 37,518 76,462 79,751
1991 1992 1993 1994 1995	63,389 84,320 90,152 91,785 108,311	92,401 126,227 137,473 141,222 181,787	155,790 210,547 227,625 233,007 290,098	62,470 89,247 98,432 102,021 126,001	81,991 115,208 125,174 126,216 149,377	235,712 325,629 347,457 352,415 416,956	380,173 530,084 571,063 580,652 692,334	44,887 61,137 67,725 81,420 131,675	83,709 113,925 126,662 159,156 270,726	128,596 175,062 194,387 240,576 402,401
1996 1997 1998 1999 2000	132,305 252,468 303,723 301,004 294,830	232,343 442,322 530,012 525,267 514,494	364,648 694,790 833,735 826,271 809,324	158,514 318,973 382,647 379,221 371,443	180,787 348,586 417,944 414,202 405,707	505,042 972,451 1,165,849 1,155,411 1,131,714	844,343 1,640,010 1,966,440 1,948,834 1,908,864	242,654 264,118 323,069 320,176 313,610	534,449 1,576,807 1,907,213 1,890,137 1,851,371	777,103 1,840,925 2,230,282 2,210,313 2,164,981
2001 2002 2003 2004 2005	292,515 289,171 286,963 290,044 288,181	510,454 504,618 500,765 506,140 502,890	802,969 793,789 787,728 796,184 791,071	368,526 364,313 361,532 365,412 363,066	402,521 397,919 394,881 399,120 396,557	1,122,827 1,109,989 1,101,516 1,113,339 1,106,190	1,893,874 1,872,221 1,857,929 1,877,871 1,865,813	311,147 307,590 305,241 308,518 306,537	1,836,833 1,815,833 1,801,970 1,821,312 1,809,617	2,147,980 2,123,423 2,107,211 2,129,830 2,116,154
2006 2007 2008 2009 2010	286,534 271,392 305,068 305,762 306,393	500,016 473,593 532,360 533,569 534,671	786,550 744,985 837,428 839,331 841,064	360,991 341,915 384,341 385,215 386,010	394,290 373,454 419,795 420,749 421,617	1,099,867 1,041,746 1,171,012 1,173,674 1,176,096	1,855,148 1,757,115 1,975,148 1,979,638 1,983,723	304,785 288,679 324,500 325,237 325,908	1,799,273 1,704,193 1,915,660 1,920,014 1,923,976	2,104,058 1,992,872 2,240,160 2,245,251 2,249,884
2011 2012 2013 2014 2015	283,934 284,554 305,626 286,670 287,349	495,480 496,561 533,333 500,253 501,438	779,414 781,115 838,959 786,923 788,787	357,716 358,496 385,044 361,162 362,018	390,713 391,566 420,563 394,477 395,412	1,089,889 1,092,267 1,173,154 1,100,388 1,102,996	1,838,318 1,842,329 1,978,761 1,856,027 1,860,426	302,019 302,679 325,093 304,929 305,652	1,782,950 1,786,840 1,919,163 1,800,126 1,804,393	2,084,969 2,089,519 2,244,256 2,105,055 2,110,045
2016 2017 2018 2019 2020	288,144 273,550 274,337 292,969 294,017	502,826 477,359 478,732 511,245 513,074	790,970 750,909 753,069 804,214 807,091	363,019 344,633 345,624 369,098 370,418	396,506 376,424 377,507 403,145 404,587	1,106,048 1,050,030 1,053,049 1,124,568 1,128,591	1,865,573 1,771,087 1,776,180 1,896,811 1,903,596	306,497 290,974 291,811 311,629 312,744	1,809,384 1,717,745 1,722,684 1,839,681 1,846,262	2,115,881 2,008,719 2,014,495 2,151,310 2,159,006
2021 2022 2023 2024 2025	295,271 293,343 326,695 274,424 134,094	515,262 511,899 570,100 478,883 234,000	810,533 805,242 896,795 753,307 368,094	371,998 369,570 411,588 345,734 168,938	406,313 403,661 449,555 377,626 184,522	1,133,405 1,126,006 1,254,028 1,053,382 514,721	1,911,716 1,899,237 2,115,171 1,776,742 868,181	314,078 312,028 347,504 291,903 142,635	1,854,137 1,842,033 2,051,466 1,723,229 842,033	2,168,215 2,154,061 2,398,970 2,015,132 984,668
2026 2027 2028 2029 2030	67,708 37,537 0 0	118,155 65,503 0 0	185,863 103,040 0 0	85,303 47,291 0 0	93,171 51,653 0 0	259,901 144,085 0 0	438,375 243,029 0 0	72,021 39,927 0 0	425,171 235,709 0 0	497,192 275,636 0 0
2031 2032 2033 2034 2035	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
Total	9,063,633	15,697,335	24,760,968	11,295,126	12,436,538	34,751,178	58,482,842	9,600,646	53,991,663	63,592,309

TABLE B-22 Water System Revenue Bond Surcharge for Each Contractor (Dollars)

	t			•	ollars)				Page 2 of
					Joaquin Valley	Area			
Calendar	Dudley Ridge Water District	Empire West Side Irrigation District	Future Contractor San Joaquin Valley	Kern County V  Municipal and Industrial	Vater Agency Agricultural	County of Kings	Oak Flat Water District	Tulare Lake Basin Water Storage District	Total
Year	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1971 1972 1973 1974 1975	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1976 1977 1978 1979 1980	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1981 1982 1983 1984 1985	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1986 1987 1988 1989 1990	0 0 33,986 59,273 53,349	0 0 1,657 2,785 2,419	0 0 0 0	0 67,288 116,689 287,811	0 726,501 1,251,452 947,351	0 0 2,228 3,733 3,248	0 0 2,851 4,927 4,367	0 0 66,748 116,736 109,118	0 901,259 1,555,595 1,407,663
1991 1992 1993 1994 1995	82,252 112,566 119,670 118,265 139,226	3,731 5,127 5,459 5,379 6,340	0 0 0 0	359,380 452,691 272,449 244,671 317,885	1,564,983 2,153,423 2,491,672 2,485,820 2,894,181	5,035 6,927 7,381 7,300 8,599	6,771 9,285 9,894 9,766 11,490	168,217 230,217 244,813 241,933 284,798	2,190,369 2,970,236 3,151,338 3,113,134 3,662,519
1996 1997 1998 1999 2000	169,333 307,988 369,489 366,181 358,670	7,703 14,860 17,838 17,679 17,316	0 0 0 0	354,341 682,198 815,649 808,347 791,768	2,722,240 4,979,988 5,759,279 5,777,474 5,658,979	10,461 20,164 24,202 23,985 23,493	13,978 26,941 32,326 32,037 31,379	346,367 666,744 799,866 792,705 776,447	3,624,423 6,698,883 7,818,649 7,818,408 7,658,052
2001 2002 2003 2004 2005	355,854 351,785 349,100 352,847 350,581	17,180 16,984 16,854 17,035 16,926	0 0 0 0	785,551 776,570 770,641 778,913 773,912	5,614,542 5,550,350 5,507,979 5,567,099 5,531,353	23,308 23,042 22,866 23,111 22,963	31,133 30,777 30,542 30,870 30,672	770,350 761,542 755,729 763,840 758,936	7,597,918 7,511,050 7,453,711 7,533,715 7,485,343
2006 2007 2008 2009 2010	348,577 330,157 371,125 371,969 372,736	16,829 15,940 17,918 17,958 17,995	0 0 0 0	769,488 728,825 819,262 821,124 822,819	5,499,735 5,209,108 5,855,487 5,868,794 5,880,906	22,832 21,625 24,309 24,364 24,414	30,496 28,885 32,469 32,543 32,610	754,598 714,722 803,409 805,235 806,897	7,442,555 7,049,262 7,923,979 7,941,987 7,958,377
2011 2012 2013 2014 2015	345,415 346,169 371,804 348,743 349,569	16,676 16,713 17,950 16,837 16,877	0 0 0 0	762,507 764,171 820,761 769,852 771,677	5,449,839 5,461,731 5,866,196 5,502,341 5,515,382	22,625 22,674 24,353 22,843 22,897	30,220 30,286 32,528 30,511 30,583	747,752 749,383 804,878 754,955 756,745	7,375,034 7,391,127 7,938,470 7,446,082 7,463,730
2016 2017 2018 2019 2020	350,536 332,783 333,739 356,406 357,681	16,924 16,066 16,113 17,207 17,269	0 0 0 0	773,812 734,621 736,733 786,769 789,583	5,530,641 5,250,532 5,265,628 5,623,247 5,643,362	22,960 21,797 21,860 23,344 23,428	30,668 29,115 29,198 31,181 31,293	758,838 720,405 722,477 771,544 774,304	7,484,379 7,105,319 7,125,748 7,609,698 7,636,920
2021 2022 2023 2024 2025	359,206 356,861 397,435 333,845 163,129	17,342 17,229 19,188 16,118 7,876	0 0 0 0	792,951 787,775 877,342 736,966 360,109	5,667,434 5,630,437 6,270,597 5,267,293 2,573,793	23,528 23,374 26,032 21,867 10,685	31,426 31,221 34,771 29,208 14,272	777,607 772,531 860,365 722,705 353,140	7,669,494 7,619,428 8,485,730 7,128,002 3,483,004
2026 2027 2028 2029 2030	82,369 45,664 0 0	3,977 2,205 0 0	0 0 0 0	181,831 100,805 0 0	1,299,597 720,478 0 0	5,395 2,991 0 0	7,206 3,995 0 0	178,313 98,854 0 0	1,758,688 974,992 0 0
2031 2032 2033 2034 2035	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
Total	11,076,333	532,479	0	24,966,537	178,037,224	722,243	964,691	23,864,763	240,164,270

TABLE B-22 Water System Revenue Bond Surcharge for Each Contractor (Dollars)

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1					(DOIIARS) Southern Calif	fornia Area				Page 3 of
Calendar Year	Antelope Valley-East Kern Water Agency (20)	Castaic Lake Water Agency (21)	Coachella Valley Water District (22)	Crestline Lake Arrowhead Water Agency (23)	Desert Water Agency (24)	Littlerock Creek Irrigation District (25)	Mojave Water Agency (26)	Palmdale Water District (27)	San Bernardino Valley Municipal Water District (28)	San Gabriel Valley Municipal Water District (29)
1971 1972 1973 1974 1975	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1976 1977 1978 1979 1980	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1981 1982 1983 1984 1985	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1986	0	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0	0
1988	64,266	57,111	27,032	7,656	44,492	2,154	55,996	16,240	151,182	39,907
1989	205,668	98,720	46,993	13,263	78,104	3,763	97,138	27,981	259,860	69,104
1990	185,010	87,808	42,449	11,905	69,970	3,385	87,327	24,956	231,650	61,851
1991	296,854	140,371	65,947	18,548	108,704	5,236	135,623	38,641	363,310	96,172
1992	402,015	234,421	89,358	25,192	147,297	7,053	183,813	52,160	491,537	130,372
1993	424,871	247,076	93,981	26,566	154,919	7,437	193,361	55,045	517,379	137,298
1994	424,023	247,222	94,502	26,865	155,776	7,431	194,191	54,968	525,394	139,422
1995	500,084	290,998	111,730	31,822	184,170	8,769	229,530	64,852	623,848	165,593
1996	606,388	353,132	135,428	38,634	223,237	10,640	278,178	78,696	760,333	201,821
1997	1,166,191	675,664	259,937	74,132	428,478	20,434	534,121	151,132	1,505,782	386,414
1998	1,386,249	805,671	308,340	90,051	508,263	24,248	1,171,403	179,436	1,782,381	469,620
1999	1,373,837	798,457	305,580	89,245	503,713	24,030	1,160,916	177,830	1,766,424	465,416
2000	1,345,660	782,081	299,313	87,414	493,382	23,537	1,137,106	174,182	1,730,195	455,870
2001	1,335,093	775,940	296,962	86,728	489,507	23,353	1,128,177	172,815	1,716,609	452,291
2002	1,319,829	767,068	293,567	85,736	483,911	23,086	1,115,278	170,839	1,696,983	447,119
2003	1,309,753	761,213	291,326	85,082	480,216	22,909	1,106,764	169,535	1,684,028	443,706
2004	1,323,812	769,383	294,453	85,995	485,371	23,155	1,118,644	171,354	1,702,103	448,469
2005	1,315,312	764,443	292,562	85,443	482,254	23,007	1,111,461	170,254	1,691,174	445,589
2006	1,307,793	760,073	290,890	84,955	479,498	22,875	1,105,108	169,281	1,681,507	443,042
2007	1,238,684	719,908	275,518	80,465	454,159	21,666	1,046,710	160,335	1,592,650	419,630
2008	1,392,388	809,239	309,706	90,450	510,514	24,355	1,176,592	180,231	1,790,276	471,700
2009	1,395,553	811,078	310,410	90,655	511,674	24,410	1,179,266	180,640	1,794,345	472,772
2010	1,398,433	812,752	311,051	90,842	512,730	24,461	1,181,700	181,013	1,798,048	473,748
2011	1,295,928	753,178	288,251	84,184	475,148	22,668	1,095,082	167,745	1,666,252	439,023
2012	1,298,756	754,821	288,880	84,367	476,184	22,717	1,097,471	168,111	1,669,888	439,981
2013	1,394,935	810,719	310,273	90,615	511,448	24,399	1,178,744	180,560	1,793,550	472,563
2014	1,308,413	760,434	291,028	84,995	479,725	22,886	1,105,631	169,361	1,682,304	443,252
2015	1,311,514	762,236	291,718	85,196	480,862	22,940	1,108,252	169,762	1,686,292	444,303
2016	1,315,142	764,345	292,525	85,432	482,192	23,004	1,111,318	170,232	1,690,957	445,532
2017	1,248,535	725,633	277,709	81,105	457,771	21,839	1,055,033	161,610	1,605,315	422,967
2018	1,252,124	727,719	278,508	81,338	459,087	21,901	1,058,067	162,075	1,609,931	424,183
2019	1,337,163	777,143	297,423	86,862	490,266	23,389	1,129,926	173,083	1,719,271	452,992
2020	1,341,947	779,923	298,487	87,173	492,020	23,473	1,133,968	173,702	1,725,421	454,612
2021	1,347,671	783,250	299,760	87,545	494,119	23,573	1,138,805	174,443	1,732,780	456,551
2022	1,338,873	778,136	297,803	86,973	490,893	23,419	1,131,371	173,304	1,721,469	453,571
2023	1,491,098	866,608	331,662	96,862	546,706	26,081	1,260,004	193,008	1,917,194	505,140
2024	1,252,520	727,949	278,596	81,364	459,232	21,908	1,058,401	162,126	1,610,440	424,317
2025	612,027	355,703	136,132	39,757	224,398	10,705	517,174	79,221	786,920	207,337
2026 2027 2028 2029 2030	309,034 171,324 0 0	179,607 99,571 0 0	68,738 38,107 0 0	20,075 11,129 0 0	113,306 62,815 0 0	5,405 2,997 0 0	261,139 144,772 0 0 0	40,001 22,176 0 0	397,343 220,281 0 0	104,692 58,040 0 0
2031 2032 2033 2034 2035	0 0 0 0	0 0 0 0	0 0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
Total	41,344,770	23,976,804	9,212,635	2,682,616	15,186,511	724,698	33,313,561	5,362,936	53,092,606	13,985,982

TABLE B-22 Water System Revenue Bond Surcharge for Each Contractor (Dollars)

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	.Sc	outhern California	a Area (contin	ued)	(Dollars)	Feather R	1	Page 4 of 4		
Calendar	San Gorgonio Pass Water Agency	Metropolitan Water District of Southern California	Ventura County Flood Control District	Total	City of Yuba City	County of Butte	Plumas County FC&WCD	Total	South Bay Area Future Contractor	Grand Total
Year	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)
1971 1972 1973 1974 1975	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1976 1977 1978 1979 1980	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1981 1982 1983 1984 1985	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1986 1987 1988 1989 1990	0 0 24,019 42,040 38,023	0 0 2,642,354 4,587,641 4,037,980	0 0 18,118 34,565 34,994	0 0 3,150,527 5,564,840 4,917,308	0 0 1,336 0 2,535	0 0 552 918 800	0 0 853 1,454 1,283	0 0 2,741 2,372 4,618	0 0 0 0	0 0 4,317,328 7,583,021 6,750,020
1991 1992 1993 1994 1995	59,122 80,131 84,371 85,698 101,792	6,259,893 8,435,312 8,885,273 8,926,755 10,539,430	54,115 72,892 76,858 76,794 90,436	7,642,536 10,351,553 10,904,435 10,959,041 12,943,054	9,945 13,671 14,608 14,409 16,958	1,243 1,710 1,827 1,801 2,119	2,027 2,806 3,026 3,070 3,705	13,215 18,187 19,461 19,280 22,782	0 0 0 0	10,510,679 14,255,669 15,068,309 15,145,690 18,013,188
1996 1997 1998 1999 2000	124,074 52,633 105,678 104,731 102,583	12,810,359 24,525,568 29,406,932 29,143,657 28,545,928	109,783 210,384 250,745 248,500 243,403	15,730,703 29,990,870 36,489,017 36,162,336 35,420,654	20,640 39,826 47,781 47,353 46,382	2,579 4,980 5,977 5,924 5,802	4,620 9,074 11,132 11,032 10,806	27,839 53,880 64,890 64,309 62,990	0 0 0 0	21,369,059 40,919,358 49,403,013 49,030,471 48,024,865
2001 2002 2003 2004 2005	101,778 100,614 99,846 100,917 100,270	28,321,770 27,997,965 27,784,227 28,082,451 27,902,136	241,492 238,731 236,908 239,451 237,914	35,142,515 34,740,726 34,475,513 34,845,558 34,621,819	46,018 45,492 45,144 45,629 45,336	5,757 5,691 5,648 5,708 5,672	10,721 10,599 10,518 10,631 10,562	62,496 61,782 61,310 61,968 61,570	0 0 0 0	47,647,752 47,102,991 46,743,402 47,245,126 46,941,770
2006 2007 2008 2009 2010	99,696 94,428 106,145 106,386 106,606	27,742,641 26,276,619 29,537,183 29,604,312 29,665,409	236,554 224,053 251,855 252,428 252,948	34,423,913 32,604,825 36,650,634 36,733,929 36,809,741	45,077 42,695 47,993 48,102 48,201	5,639 5,341 6,004 6,017 6,030	10,502 9,947 11,181 11,207 11,230	61,218 57,983 65,178 65,326 65,461	0 0 0 0	46,673,442 44,207,042 49,692,527 49,805,462 49,908,250
2011 2012 2013 2014 2015	98,792 99,007 106,339 99,744 99,980	27,490,950 27,550,939 29,591,204 27,755,791 27,821,575	234,407 234,919 252,316 236,666 237,227	34,111,608 34,186,041 36,717,665 34,440,230 34,521,857	44,668 44,765 48,080 45,098 45,205	5,588 5,600 6,015 5,642 5,655	10,407 10,429 11,202 10,507 10,532	60,663 60,794 65,297 61,247 61,392	0 0 0 0	46,250,006 46,350,925 49,783,408 46,695,564 46,806,237
2016 2017 2018 2019 2020	100,257 95,179 95,453 101,935 102,300	27,898,542 26,485,571 26,561,722 28,365,685 28,467,151	237,883 225,835 226,484 241,866 242,731	34,617,361 32,864,102 32,958,592 35,197,004 35,322,908	45,330 43,034 43,158 46,089 46,254	5,671 5,384 5,399 5,766 5,786	10,561 10,026 10,055 10,738 10,776	61,562 58,444 58,612 62,593 62,816	0 0 0 0	46,935,726 44,558,580 44,686,696 47,721,630 47,892,337
2021 2022 2023 2024 2025	102,736 102,066 113,670 95,483 46,656	28,588,578 28,401,949 31,631,152 26,570,122 12,983,136	243,767 242,175 269,710 226,556 110,704	35,473,578 35,242,002 39,248,895 32,969,014 16,109,870	46,451 46,148 51,395 43,172 21,095	5,811 5,773 6,429 5,401 2,639	10,822 10,752 11,974 10,058 4,915	63,084 62,673 69,798 58,631 28,649	0 0 0 0	48,096,620 47,782,643 53,215,359 44,700,828 21,842,466
2026 2027 2028 2029 2030	23,558 13,060 0 0	6,555,634 3,634,352 0 0	55,898 30,989 0 0	8,134,430 4,509,613 0 0	10,652 5,905 0 0	1,333 739 0 0	2,482 1,376 0 0	14,467 8,020 0 0	0 0 0 0	11,029,015 6,114,330 0 0 0
2031 2032 2033 2034 2035	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
Total	3,517,796	878,015,848	7,484,054	1,087,900,817	1,411,630	178,370	329,598	1,919,598	0	1,476,820,804

## TABLE B-23 Total Transportation and Delta Water Charge for Each Contractor (Dollars)

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					(Dollar	s)				Page 1 of 4
	I	North Bay Area	a		South	Bay Area		(	Central Coastal A	rea
Calendar Year	Napa County FC&WCD (1)	Solano County WA (2)	Total (3)	Alameda County FC&WCD, Zone 7 (4)	Alameda County Water District (5)	Santa Clara Valley Water District (6)	Total (7)	San Luis Obispo County FC&WCD (8)	Santa Barbara County FC&WCD (9)	Total (10)
1961 1962 1963 1964 1965	0 0 0 0	0 0 0 0 0	0 0 0 0	0 11,750 151,140 170,797 245,718	0 43,787 190,453 277,738 404,749	0 0 449,448 623,343 1,160,661	0 55,537 791,041 1,071,878 1,811,128	0 0 0 6,064 11,435	0 0 0 20,521 31,771	0 0 0 26,585 43,206
1966 1967 1968 1969 1970	18,096 41,644 128,824 254,981 277,819	0 0 0 0	18,096 41,644 128,824 254,981 277,819	271,833 361,679 411,342 477,464 541,779	422,196 549,011 633,770 584,080 640,965	1,415,802 1,866,228 2,181,690 2,302,121 2,791,412	2,109,831 2,776,918 3,226,802 3,363,665 3,974,156	20,198 38,006 63,565 118,200 130,918	49,707 84,262 133,233 235,433 260,050	69,905 122,268 196,798 353,633 390,968
1971	227,749	0	227,749	479,104	675,866	2,810,474	3,965,444	131,734	262,620	394,354
1972	225,255	0	225,255	609,002	823,070	3,031,213	4,463,285	137,493	274,669	412,162
1973	221,370	31,433	252,803	594,730	717,166	3,124,259	4,436,155	134,288	269,504	403,792
1974	240,782	33,008	273,790	634,868	747,608	3,328,497	4,710,973	135,296	272,061	407,357
1975	237,756	36,366	274,122	691,750	793,732	3,217,526	4,703,008	151,619	302,951	454,570
1976	271,596	40,918	312,514	804,333	944,143	3,366,025	5,114,501	260,819	506,160	766,979
1977	293,936	45,185	339,121	772,020	922,884	3,306,954	5,001,858	270,548	527,595	798,143
1978	274,184	49,273	323,457	859,589	936,502	3,716,086	5,512,177	277,188	543,157	820,345
1979	289,798	53,442	343,240	954,376	1,010,189	3,822,525	5,787,090	274,962	542,333	817,295
1980	311,160	86,198	397,358	1,105,949	1,174,434	4,122,796	6,403,179	312,814	597,023	909,837
1981	347,577	113,003	460,580	1,211,246	1,349,941	4,512,209	7,073,396	337,341	652,635	989,976
1982	438,706	142,022	580,728	1,286,049	1,368,621	4,887,669	7,542,339	358,863	739,193	1,098,056
1983	355,214	163,551	518,765	1,163,330	1,262,144	4,948,715	7,374,189	387,925	758,833	1,146,758
1984	467,879	247,070	714,949	1,467,617	1,479,190	6,877,974	9,824,781	440,158	857,665	1,297,823
1985	736,900	386,900	1,123,800	1,965,197	2,230,111	7,810,992	12,006,300	535,986	1,035,141	1,571,127
1986	1,121,376	715,360	1,836,736	1,831,234	2,017,843	8,212,370	12,061,447	569,114	1,097,842	1,666,956
1987	1,774,629	1,584,700	3,359,329	2,326,577	2,509,951	8,000,069	12,836,597	602,001	1,206,958	1,808,959
1988	2,353,608	2,548,423	4,902,031	2,387,110	2,779,043	7,843,680	13,009,833	704,814	1,498,402	2,203,216
1989	2,529,880	3,700,565	6,230,445	2,349,870	2,501,534	7,530,212	12,381,616	804,496	1,873,961	2,678,457
1990	2,903,015	3,855,382	6,758,397	2,802,177	2,935,221	8,374,136	14,111,534	964,419	2,104,056	3,068,475
1991	2,940,977	4,177,210	7,118,187	2,060,011	2,381,282	6,425,423	10,866,716	1,008,965	2,407,105	3,416,070
1992	2,799,175	4,151,701	6,950,876	2,529,498	2,927,706	7,660,078	13,117,282	1,146,423	2,546,350	3,692,773
1993	2,862,093	4,190,374	7,052,467	3,383,210	2,979,247	8,857,056	15,219,513	1,215,108	2,719,457	3,934,565
1994	2,985,849	4,235,353	7,221,202	3,405,312	3,578,011	9,595,666	16,578,989	1,361,305	3,456,222	4,817,527
1995	2,963,493	4,421,091	7,384,584	3,650,492	3,305,956	8,378,342	15,334,790	1,685,883	6,059,145	7,745,028
1996	3,072,023	4,827,602	7,899,625	3,226,331	3,161,264	9,184,091	15,571,686	2,678,380	14,871,781	17,550,161
1997	3,564,575	5,465,688	9,030,263	4,302,224	4,385,376	10,617,361	19,304,961	4,297,503	28,721,105	33,018,608
1998	3,532,093	5,687,285	9,219,378	4,170,606	4,232,030	11,922,666	20,325,302	4,599,469	32,268,906	36,868,375
1999	3,554,748	5,682,568	9,237,316	4,569,048	4,191,688	11,760,253	20,520,989	4,506,961	32,811,126	37,318,087
2000	3,589,665	5,716,654	9,306,319	4,597,473	4,237,517	11,742,835	20,577,825	4,509,184	32,896,945	37,406,129
2001	3,603,625	5,715,351	9,318,976	4,559,725	4,207,934	11,658,203	20,425,862	4,498,481	32,802,224	37,300,705
2002	3,638,944	5,738,333	9,377,277	4,561,983	4,425,847	11,659,526	20,647,356	6,015,063	32,757,563	38,772,626
2003	3,649,319	5,734,037	9,383,356	4,495,443	4,364,594	11,512,444	20,372,481	5,921,482	32,577,698	38,499,180
2004	3,686,019	5,770,069	9,456,088	4,539,757	4,405,756	11,612,194	20,557,707	5,978,651	32,695,234	38,673,885
2005	3,699,009	5,752,184	9,451,193	4,485,805	4,356,065	11,492,799	20,334,669	5,912,857	32,567,128	38,479,985
2006	3,718,997	5,756,665	9,475,662	4,496,571	4,365,524	11,514,396	20,376,491	5,928,262	32,588,041	38,516,303
2007	3,723,300	5,727,265	9,450,565	4,461,948	4,330,490	11,422,472	20,214,910	5,891,170	32,454,734	38,345,904
2008	3,809,953	5,819,829	9,629,782	4,604,706	4,468,440	11,769,861	20,843,007	6,071,940	32,929,980	39,001,920
2009	3,834,808	5,822,993	9,657,801	4,606,510	4,470,245	11,774,544	20,851,299	6,073,870	32,936,506	39,010,376
2010	3,859,455	5,825,627	9,685,082	4,606,523	4,470,399	11,775,265	20,852,187	6,073,477	32,938,533	39,012,010
2011	3,865,717	5,788,442	9,654,159	4,578,995	4,440,193	11,690,726	20,709,914	6,050,600	32,799,348	38,849,948
2012	3,891,654	5,792,387	9,684,041	4,583,527	4,444,471	11,701,251	20,729,249	6,056,451	32,812,692	38,869,143
2013	3,870,512	5,755,122	9,625,634	4,267,828	4,156,600	10,913,198	19,337,626	5,732,720	32,315,423	38,048,143
2014	3,855,258	5,699,873	9,555,131	4,135,536	3,998,437	10,516,139	18,650,112	5,592,843	31,969,304	37,562,147
2015	3,866,960	5,687,622	9,554,582	4,055,281	3,870,857	10,055,115	17,981,253	5,521,263	31,840,599	37,361,862
2016	3,865,058	5,681,966	9,547,024	4,011,341	3,817,442	9,827,813	17,656,596	5,475,947	31,759,595	37,235,542
2017	3,847,475	5,653,813	9,501,288	3,952,617	3,758,748	9,637,304	17,348,669	5,428,779	31,608,234	37,037,013
2018	3,791,692	5,655,022	9,446,714	3,910,164	3,717,154	9,513,833	17,141,151	5,413,423	31,581,534	36,994,957
2019	3,790,678	5,687,803	9,478,481	3,895,194	3,707,075	9,482,935	17,085,204	5,429,613	31,690,442	37,120,055
2020	3,804,703	5,683,272	9,487,975	3,860,614	3,673,477	9,400,122	16,934,213	5,399,779	31,639,445	37,039,224
2021	3,807,067	5,684,901	9,491,968	3,857,413	3,670,462	9,394,167	16,922,042	5,397,755	31,640,106	37,037,861
2022	3,803,358	5,681,175	9,484,533	3,853,203	3,665,814	9,379,941	16,898,958	5,393,561	31,622,659	37,016,220
2023	3,838,278	5,710,183	9,548,461	3,901,876	3,717,710	9,520,559	17,140,145	5,438,497	31,848,582	37,287,079
2024	3,784,330	5,618,495	9,402,825	3,838,475	3,647,889	9,324,397	16,810,761	5,388,094	31,529,073	36,917,167
2025	3,629,957	5,365,284	8,995,241	3,645,871	3,439,840	8,749,385	15,835,096	5,215,825	30,605,267	35,821,092
2026	3,557,518	5,243,695	8,801,213	3,557,490	3,344,128	8,483,989	15,385,607	5,033,152	29,980,038	35,013,190
2027	3,520,853	5,183,688	8,704,541	3,507,684	3,291,657	8,340,708	15,140,049	4,985,908	29,759,446	34,745,354
2028	3,479,816	5,113,899	8,593,715	3,457,373	3,237,097	8,188,380	14,882,850	4,939,590	29,508,655	34,448,245
2029	3,478,424	5,111,598	8,590,022	3,459,818	3,239,281	8,192,679	14,891,778	4,946,618	29,518,153	34,464,771
2030	3,461,992	5,091,352	8,553,344	3,438,550	3,219,788	8,145,830	14,804,168	4,920,152	29,465,655	34,385,807
2031	3,450,213	5,073,150	8,523,363	3,436,538	3,217,874	8,140,834	14,795,246	4,921,364	29,453,846	34,375,210
2032	3,440,248	5,055,040	8,495,288	3,442,918	3,223,650	8,154,316	14,820,884	4,928,375	29,472,087	34,400,462
2033	3,410,198	5,008,857	8,419,055	3,436,741	3,217,954	8,140,379	14,795,074	4,920,456	29,461,041	34,381,497
2034	3,347,914	4,937,262	8,285,176	3,434,595	3,215,730	8,133,756	14,784,081	4,925,370	29,467,359	34,392,729
2035	3,216,681	4,795,878	8,012,559	3,423,208	3,205,270	8,108,015	14,736,493	4,918,773	29,453,142	34,371,915
Total	177,108,408	255,810,457	432,918,865	205,195,656	202,309,911	559,106,332	966,611,899	225,929,606	1,275,545,244	1,501,474,850

TABLE B-23

Total Transportation and Delta Water Charge for Each Contractor (Dollars)

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Т	1				Dollars)	Area			Page 2 of 4
					nn Joaquin Valley Water Agency	Alea		Tulare Lake	
Calendar	Dudley Ridge Water District	Empire West Side Irrigation District	Future Contractor San Joaquin Valley	Municipal and Industrial	Agricultural	County of Kings	Oak Flat Water District	Basin Water Storage District	Total
Year	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1961 1962 1963 1964 1965	0 0 0 0	0 0 0 0	0 0 0 2,729 6,039	0 0 0 0 73,621	0 0 0 0	0 0 0 0	0 0 0 0 0	0 0 0 0	0 0 0 2,729 79,660
1966	0	0	12,059	137,403	0	0	0	0	149,462
1967	0	0	26,300	267,762	0	0	0	0	294,062
1968	224,851	20,039	54,667	445,582	1,700,017	16,058	19,617	306,250	2,787,081
1969	241,028	12,911	87,669	525,042	2,709,466	15,694	19,350	454,760	4,065,920
1970	306,140	36,345	94,769	573,806	3,855,103	20,267	30,369	518,287	5,435,086
1971	327,541	39,074	2	605,592	5,168,411	25,982	34,649	709,348	6,910,599
1972	381,200	42,334	98,888	631,268	7,120,861	25,266	63,752	1,975,196	10,338,765
1973	398,512	40,957	97,649	1,025,521	7,243,746	27,597	39,230	778,117	9,651,329
1974	506,794	42,171	98,560	1,144,416	7,948,220	28,310	42,523	1,035,935	10,846,929
1975	679,219	42,618	106,802	1,196,782	9,317,558	29,987	48,138	1,547,806	12,968,910
1976	718,903	45,138	108,185	1,323,452	10,556,646	31,408	52,069	1,435,938	14,271,739
1977	579,177	41,055	112,656	1,367,013	10,863,623	33,159	54,178	1,132,139	14,183,000
1978	697,687	43,322	115,626	1,565,489	13,187,424	37,568	58,992	1,165,711	16,871,819
1979	780,687	49,884	114,357	1,668,194	15,250,898	41,690	70,548	1,718,055	19,694,313
1980	962,108	51,633	126,250	1,770,108	16,891,292	46,668	94,905	1,652,157	21,595,121
1981	1,211,723	86,123	134,332	2,431,918	22,489,039	65,165	100,694	2,277,725	28,796,719
1982	1,246,296	72,180	135,399	2,523,642	24,853,561	69,251	108,190	2,269,760	31,278,279
1983	1,179,904	54,541	149,600	2,084,555	24,484,022	73,952	88,937	505,905	28,621,416
1984	1,491,804	30,519	164,882	3,398,628	33,380,088	93,014	121,511	1,535,238	40,215,684
1985	1,780,345	132,675	187,509	3,922,275	39,632,514	116,898	140,560	2,839,389	48,752,165
1986	2,011,853	81,550	181,650	4,088,477	43,812,912	135,453	153,318	3,652,391	54,117,604
1987	1,893,491	97,796	180,471	4,594,650	42,856,224	136,805	152,575	3,757,200	53,669,212
1988	1,970,573	112,948	194,544	4,734,973	44,661,185	137,036	146,637	3,895,587	55,853,483
1989	2,120,982	103,651	188,809	4,674,922	46,756,247	135,561	165,908	4,367,598	58,513,678
1990	2,040,152	88,963	221,100	4,833,958	45,548,533	119,833	148,771	3,950,015	56,951,325
1991	1,708,178	82,098	219,805	4,532,759	37,364,953	102,362	134,480	3,484,305	47,628,940
1992	2,231,185	107,469	241,040	5,543,792	48,523,875	142,668	175,523	4,524,516	61,490,068
1993	2,458,586	122,091	266,446	5,809,998	54,613,779	163,142	195,377	5,281,728	68,911,147
1994	2,256,230	109,746	306,143	5,220,579	51,897,975	144,808	177,569	4,647,009	64,760,059
1995	2,843,426	116,917	302,227	6,593,686	60,013,248	180,533	209,307	5,486,897	75,746,241
1996	2,154,944	118,884	360,011	6,683,993	59,170,824	178,491	189,044	7,037,253	75,893,444
1997	3,073,017	129,540	370,270	6,885,839	65,357,855	172,384	242,664	5,789,886	82,021,455
1998	3,003,654	153,507	369,541	7,016,650	64,441,946	204,604	251,011	6,541,847	81,982,760
1999	2,934,917	149,673	376,029	6,870,080	63,136,634	199,850	246,967	6,390,150	80,304,300
2000	2,929,114	149,526	367,991	6,857,657	62,941,726	200,164	247,281	6,381,994	80,075,453
2001	2,914,586	148,735	368,318	6,821,606	62,616,345	199,109	246,182	6,349,949	79,664,830
2002	2,912,897	148,667	369,130	7,018,371	62,101,833	199,000	245,994	6,346,229	79,342,121
2003	2,882,586	146,983	369,555	6,934,935	61,446,194	196,757	243,746	6,279,092	78,499,848
2004	2,904,004	148,156	369,644	6,992,703	61,891,124	198,320	245,360	6,326,386	79,075,697
2005	2,879,023	146,774	369,452	6,924,148	61,366,040	196,480	243,509	6,271,149	78,396,575
2006	2,882,617	146,991	369,481	6,935,423	61,456,928	196,769	243,741	6,279,231	78,511,181
2007	2,857,422	145,721	369,451	6,875,741	61,017,618	195,054	241,637	6,224,323	77,926,967
2008	2,941,824	150,140	369,483	7,088,117	62,628,566	200,992	248,384	6,409,430	80,036,936
2009	2,943,077	150,204	369,486	7,091,131	62,650,805	201,077	248,489	6,412,165	80,066,434
2010	2,943,501	150,222	369,485	7,091,857	62,655,329	201,102	248,531	6,413,071	80,073,098
2011	2,916,514	148,921	369,488	7,032,489	62,231,617	199,338	246,166	6,354,665	79,499,198
2012	2,918,905	149,049	369,489	7,038,741	62,279,446	199,509	246,350	6,359,925	79,561,414
2013	2,844,911	144,684	369,608	6,815,447	60,454,887	193,715	241,333	6,194,142	77,258,727
2014	2,786,895	141,604	367,009	6,666,171	59,300,735	189,577	236,771	6,066,547	75,755,309
2015	2,772,823	140,806	363,736	6,552,574	58,979,587	188,513	235,756	6,035,231	75,269,026
2016	2,762,598	140,224	357,707	6,459,504	58,746,174	187,738	235,026	6,012,484	74,901,455
2017	2,740,891	139,143	343,474	6,278,850	58,377,518	186,278	233,186	5,965,267	74,264,607
2018	2,741,055	139,146	320,741	6,161,614	58,375,180	177,763	233,211	5,965,580	74,114,290
2019	2,763,619	140,234	312,257	6,151,760	58,730,675	178,730	235,187	6,014,419	74,526,881
2020	2,755,289	139,757	310,403	6,095,000	58,540,845	177,846	234,598	5,995,872	74,249,610
2021	2,756,036	139,788	309,293	6,074,392	58,547,942	177,746	234,675	5,997,458	74,237,330
2022	2,753,192	139,647	308,675	6,057,793	58,499,954	177,486	234,434	5,991,272	74,162,453
2023	2,796,937	141,784	308,263	6,151,883	59,209,569	180,352	238,214	6,086,140	75,113,142
2024	2,734,612	138,786	307,727	6,012,936	58,235,688	176,265	232,743	5,951,296	73,790,053
2025	2,557,426	130,180	307,176	5,615,467	55,397,201	164,574	217,336	5,567,364	69,956,724
2026	2,474,970	126,184	306,899	5,430,393	54,085,924	159,120	210,146	5,388,774	68,182,410
2027	2,433,879	124,167	306,232	5,334,076	53,410,813	156,346	206,617	5,299,583	67,271,713
2028	2,387,919	121,944	303,795	5,230,402	52,683,968	153,311	202,600	5,200,074	66,284,013
2029	2,390,570	122,094	303,493	5,234,744	52,742,004	153,448	202,791	5,205,954	66,355,098
2030	2,382,303	121,630	303,164	5,208,476	52,561,052	152,763	202,192	5,187,617	66,119,197
2031	2,384,419	121,748	301,584	5,196,097	52,607,501	152,529	202,345	5,192,313	66,158,536
2032	2,386,446	121,862	301,583	5,204,102	52,651,849	152,695	202,492	5,196,807	66,217,836
2033	2,383,928	121,721	301,234	5,192,121	52,596,700	152,373	202,309	5,191,223	66,141,609
2034	2,386,072	121,841	300,625	5,191,803	52,643,653	152,391	202,465	5,195,975	66,194,825
2035	2,384,508	121,753	299,890	5,178,339	52,609,400	152,041	202,352	5,192,514	66,140,797
Total	144,002,475	7,429,168	17,928,036	330,963,288	3,082,081,069	9,428,735	12,051,512	305,165,613	3,909,049,896

## TABLE B-23 Total Transportation and Delta Water Charge for Each Contractor (Dollars)

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					(Dollars) Southern Cal	lifa unia Auga				Page 3 of 4
					Southern Car	IIOIIIIa Area			San	San Gabriel
Calendar	Antelope Valley-East Kern Water Agency	Castaic Lake Water Agency	Coachella Valley Water District	Crestline- Lake Arrowhead Water Agency	Desert Water Agency	Littlerock Creek Irrigation District	Mojave Water Agency		Bernardino Valley Municipal Water District	Valley Municipal Water District
Year	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
1961	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0
1963	33,153	0	0	0	0	0	0	0	51,523	0
1964	62,632	27,409	14,353	4,353	36,951	1,138	42,521	8,171	82,521	34,841
1965	118,196	52,938	24,978	7,166	40,580	2,074	77,549	15,164	134,596	35,209
1966	215,076	101,133	44,529	12,429	72,823	3,739	142,039	27,578	231,665	61,227
1967	416,139	210,574	85,730	23,376	140,772	7,256	281,002	53,826	431,696	115,106
1968	733,440	490,766	151,959	41,329	249,996	12,817	498,514	95,089	779,064	208,052
1969	1,054,222	741,243	223,992	60,899	368,790	18,596	713,658	137,373	1,200,270	320,188
1970	1,369,904	940,638	313,187	89,189	515,897	25,077	950,741	183,768	1,769,499	465,116
1971	1,695,178	1,134,569	429,483	127,617	707,691	31,635	1,240,939	229,882	2,526,418	655,791
1972	2,171,678	1,379,289	599,820	184,991	983,991	43,549	1,598,118	286,076	3,760,717	946,049
1973	2,322,929	1,427,540	743,714	190,072	1,210,884	45,828	1,700,952	311,844	4,028,401	956,587
1974	2,443,203	1,522,999	767,153	203,144	1,250,670	48,700	1,764,698	330,080	4,465,450	1,100,572
1975	2,660,307	1,613,860	812,339	218,328	1,325,713	53,006	1,859,099	353,623	4,640,019	1,206,151
1976	3,124,445	1,650,476	869,253	231,137	1,418,230	57,492	1,941,217	379,617	4,839,116	1,277,416
1977	3,105,940	1,738,270	769,684	244,102	1,260,420	53,965	2,033,474	404,950	5,094,686	1,343,425
1978	3,553,686	1,871,261	968,791	254,442	1,561,082	56,564	2,087,430	418,345	5,092,175	1,372,632
1979	4,226,544	1,950,866	1,053,973	266,750	1,683,146	60,039	2,265,470	448,055	5,136,887	1,337,289
1980	4,910,911	2,089,552	1,163,162	294,285	1,883,496	67,349	2,440,089	497,274	5,646,795	1,479,932
1981	5,733,968	2,550,779	1,317,115	327,577	2,132,351	100,457	2,775,872	601,232	6,457,767	1,682,248
1982	5,492,008	2,721,467	1,404,304	345,570	2,275,346	82,039	2,747,334	640,213	6,774,506	1,923,575
1983	6,245,681	2,809,959	1,926,034	379,851	3,112,913	88,133	2,953,603	656,853	6,965,375	1,803,909
1984	7,621,146	3,915,226	3,027,902	496,804	4,871,565	96,226	3,235,795	725,953	8,055,430	2,594,710
1985	9,509,112	4,332,508	3,865,976	602,672	6,214,124	104,031	3,449,050	935,877	8,916,489	2,690,857
1986	9,428,058	4,977,938	4,322,834	647,417	6,952,801	130,185	3,621,756	1,223,742	9,157,728	3,398,002
1987	9,424,459	4,826,729	4,191,205	676,325	6,829,817	240,365	3,670,808	1,251,019	10,464,772	3,383,375
1988	9,076,484	5,030,815	4,259,489	706,071	7,015,558	159,098	3,880,024	1,045,624	11,091,696	3,275,147
1989	10,956,859	5,033,753	3,961,164	692,692	6,589,254	210,825	3,967,837	1,748,272	10,860,911	3,463,046
1990	12,312,518	5,486,620	4,644,858	729,467	7,660,156	330,828	4,201,018	1,950,861	11,700,378	4,210,812
1991	9,176,466	4,351,058	3,200,682	690,735	5,278,168	220,623	5,082,444	1,637,764	11,120,962	3,642,275
1992	11,726,621	5,804,357	3,355,499	618,319	5,533,386	174,768	6,084,206	1,529,171	11,236,814	3,709,218
1993	12,213,123	5,439,547	3,590,291	629,013	5,920,682	212,791	6,009,592	1,762,060	12,338,732	4,114,497
1994	14,199,901	6,002,124	3,609,428	717,407	5,952,046	277,519	6,984,262	2,086,207	13,371,532	4,942,681
1995	13,983,661	6,445,738	4,377,528	688,049	7,309,266	213,854	6,166,264	1,933,175	12,913,961	4,637,042
1996	14,490,204	6,556,896	7,340,199	733,647	12,105,444	208,546	6,268,178	2,294,968	13,370,606	4,758,211
1997	17,578,096	8,006,000	7,380,866	1,032,602	9,063,681	444,379	7,742,735	3,328,775	17,215,533	6,179,974
1998	25,109,988	7,821,557	4,608,878	983,172	7,600,504	425,836	10,611,643	3,187,018	18,908,981	6,607,440
1999	20,598,704	7,617,434	4,346,336	939,389	5,145,125	403,852	11,520,630	3,013,168	19,389,107	5,534,117
2000	21,347,090	7,962,495	4,460,096	974,735	5,388,194	412,223	14,319,485	3,076,441	20,982,444	5,776,957
2001	21,035,997	8,012,812	4,362,586	942,847	5,166,254	405,925	14,633,890	3,029,145	20,660,604	5,572,749
2002	23,876,141	8,688,348	4,360,453	1,372,944	7,190,786	406,149	15,436,484	3,030,722	24,260,415	6,283,148
2003	23,232,467	8,482,470	4,240,864	1,350,367	6,993,542	395,441	15,132,385	2,950,199	23,861,365	6,156,812
2004	23,645,844	8,609,837	4,300,278	1,340,977	7,091,523	402,338	15,416,156	3,002,004	23,682,432	6,154,385
2005	23,120,036	8,448,387	4,213,729	1,338,982	6,948,784	393,560	14,979,187	2,936,083	23,661,059	6,109,223
2006	23,241,612	8,485,223	4,246,044	1,353,209	7,002,092	395,580	15,068,015	2,951,269	23,901,042	6,166,132
2007	23,013,811	8,371,136	4,181,282	1,316,304	6,895,279	391,728	14,920,237	2,922,464	23,229,931	6,018,339
2008	24,166,561	8,826,356	4,408,559	1,373,274	7,270,103	411,026	15,502,959	3,067,268	24,273,460	6,309,115
2009	24,182,038	8,823,886	4,427,607	1,394,021	7,301,527	411,285	15,511,948	3,069,220	24,644,495	6,382,465
2010	24,173,020	8,816,128	4,414,356	1,379,367	7,279,662	411,139	15,507,238	3,068,103	24,384,662	6,331,188
2011	24,078,371	8,766,616	4,394,984	1,376,165	7,247,738	409,477	15,421,428	3,055,819	24,318,700	6,309,499
2012	24,123,614	8,778,290	4,405,395	1,380,814	7,264,905	410,234	15,445,641	3,061,489	24,403,631	6,329,203
2013	21,897,599	8,056,125	3,989,478	1,291,147	6,565,622	373,889	14,655,078	2,787,910	22,781,595	5,846,478
2014	20,939,278	7,692,528	3,761,534	1,203,756	6,203,567	357,261	14,287,400	2,663,337	21,245,884	5,474,952
2015	20,583,991	7,576,123	3,729,113	1,231,804	6,150,100	351,353	14,181,444	2,618,943	21,763,581	5,549,153
2016	20,231,140	7,441,921	3,627,328	1,172,997	5,982,211	345,437	14,013,203	2,574,541	20,701,372	5,316,822
2017	19,876,956	7,261,631	3,569,159	1,172,903	5,886,302	339,316	13,779,585	2,528,864	20,693,901	5,287,502
2018	19,605,451	7,043,522	3,494,906	1,138,166	5,763,830	334,527	13,570,697	2,493,373	20,052,547	5,139,627
2019	19,391,844	6,893,821	3,462,997	1,146,474	5,711,203	330,606	13,434,077	2,464,878	20,139,625	5,135,400
2020	18,873,150	6,662,649	3,332,907	1,107,226	5,496,651	320,752	13,061,133	2,393,105	19,377,186	4,937,451
2021	18,611,887	6,495,079	3,211,661	1,052,106	5,296,678	315,271	12,792,784	2,355,057	18,323,940	4,692,870
2022	18,465,325	6,375,908	3,163,724	1,046,448	5,217,625	312,552	12,632,656	2,335,448	18,104,165	4,631,237
2023	18,640,479	6,473,211	3,202,939	1,063,909	5,282,278	315,449	12,767,885	2,357,391	18,373,232	4,694,365
2024	18,412,452	6,300,444	3,136,536	1,031,166	5,172,798	311,429	12,549,403	2,327,724	17,740,713	4,549,612
2025	17,601,008	5,867,722	2,953,960	982,273	4,871,807	297,355	11,916,622	2,223,324	16,776,291	4,287,940
2026	17,246,499	5,662,817	2,873,592	963,551	4,739,328	291,158	11,607,669	2,177,545	16,375,955	4,174,683
2027	16,990,958	5,529,498	2,811,445	942,384	4,636,848	286,774	11,406,191	2,144,907	15,964,332	4,071,145
2028	16,802,859	5,411,910	2,776,327	939,072	4,578,972	283,476	11,247,868	2,120,539	15,869,754	4,035,802
2029	16,853,019	5,411,653	2,785,399	942,578	4,593,930	284,300	11,273,992	2,126,774	15,933,415	4,051,163
2030	16,640,594	5,277,742	2,729,132	913,035	4,501,121	280,763	11,147,808	2,100,204	15,397,062	3,931,462
2031	16,593,801	5,235,352	2,732,455	927,935	4,506,611	279,916	11,115,985	2,093,988	15,661,438	3,979,197
2032	16,653,565	5,215,632	2,741,073	926,621	4,520,826	280,910	11,156,599	2,101,454	15,636,888	3,978,855
2033	16,518,009	5,144,057	2,702,233	906,835	4,456,756	278,634	11,064,861	2,084,402	15,297,724	3,901,557
2034	16,460,892	5,135,782	2,708,288	923,703	4,466,751	277,669	11,041,579	2,077,167	15,593,631	3,954,315
2035	16,346,845	5,078,333	2,687,074	915,979	4,431,773	275,668	10,994,474	2,062,968	15,437,221	3,916,370
Total	982,568,843	372,989,332	212,366,181	55,926,462	340,347,296	17,093,749	605,604,607	128,166,736	989,728,470	270,903,892

TABLE B-23

### Total Transportation and Delta Water Charge for Each Contractor (Dollars)

					(Dollars)					Page 4 of 4
	S	Southern Californi	•	ıed)		Feather	River Area			
Calendar Year	San Gorgonio Pass Water Agency (30)	Metropolitan Water District of Southern California (31)	Ventura County Flood Control District (32)	Total (33)	City of Yuba City (34)	County of Butte (35)	Plumas County FC&WCD (36)	Total (37)	South Bay Area Future Contractor (38)	Grand Total (39)
1961 1962 1963 1964 1965	0 0 0 21,648 21,784	0 0 688,882 1,258,056 2,176,243	0 0 0 9,363 17,738	0 0 773,558 1,603,957 2,724,215	0 0 0 0	0 0 0 0	0 0 0 0 405	0 0 0 0 405	0 0 55,823 84,094 129,191	0 55,537 1,620,422 2,789,243 4,787,805
1966 1967 1968 1969 1970	37,820 71,000 128,385 197,819 288,148	3,891,995 7,677,768 15,288,020 23,098,226 30,529,578	33,372 68,052 142,609 214,850 273,028	4,875,425 9,582,297 18,820,040 28,350,126 37,713,770	0 0 0 0	0 0 1,050 1,225 3,848	565 563 1,440 4,125 17,139	565 563 2,490 5,350 20,987	148,545 204,922 279,614 349,609 386,703	7,371,829 13,022,674 25,441,649 36,743,284 48,199,489
1971 1972 1973 1974 1975	407,146 534,631 585,297 608,726 641,821	39,836,038 54,837,529 59,431,311 65,848,628 71,665,933	341,681 421,472 434,774 454,686 477,507	49,364,068 67,747,910 73,390,133 80,808,709 87,527,706	0 0 0 0	4,546 4,929 7,059 8,336 9,416	19,212 21,178 21,805 22,436 23,550	23,758 26,107 28,864 30,772 32,966	376,266 401,782 376,261 399,238 408,459	61,262,238 83,615,266 88,539,337 97,477,768 106,369,741
1976 1977 1978 1979 1980	665,438 693,587 706,080 709,868 859,136	74,740,383 73,169,841 81,781,615 83,428,460 92,853,653	474,684 506,157 522,276 525,499 582,652	91,668,904 90,418,501 100,246,379 103,092,846 114,768,286	0 0 0 0	7,004 16,917 12,635 16,575 19,834	23,284 24,087 24,252 28,379 26,589	30,288 41,004 36,887 44,954 46,423	431,049 423,790 427,039 447,073 507,818	112,595,974 111,205,417 124,238,103 130,226,811 144,628,022
1981	943,269	111,598,787	671,337	136,892,759	0	21,682	34,591	56,273	517,317	174,787,020
1982	1,018,306	116,947,391	726,864	143,098,923	0	16,117	43,025	59,142	513,658	184,171,125
1983	1,073,349	118,835,398	848,536	147,699,594	0	15,202	27,088	42,290	553,396	185,956,408
1984	1,208,828	157,122,685	932,136	193,904,406	20,590	15,442	28,701	64,733	562,186	246,584,562
1985	1,290,301	195,296,475	998,315	238,205,787	24,050	16,976	32,143	73,169	682,463	302,414,811
1986	1,344,228	218,421,294	1,059,391	264,685,374	31,753	18,145	33,432	83,330	621,116	335,072,563
1987	1,371,404	204,085,805	1,047,870	251,463,953	37,071	17,794	33,618	88,483	686,043	323,912,576
1988	1,468,767	222,037,381	1,126,196	270,172,350	48,058	19,117	35,688	102,863	709,900	346,953,676
1989	1,510,217	230,712,687	1,233,636	280,941,153	61,184	20,809	38,088	120,081	769,174	361,634,604
1990	1,617,825	276,658,302	1,851,345	333,354,988	66,041	20,855	38,739	125,635	821,332	415,191,686
1991	1,720,588	221,657,089	1,547,096	269,325,950	180,212	22,526	41,303	244,041	566,456	339,166,360
1992	1,792,811	245,845,400	1,501,548	298,912,118	208,216	26,028	45,671	279,915	804,698	385,247,730
1993	1,978,842	220,138,005	1,551,542	275,898,717	209,613	26,203	46,514	282,330	966,157	372,264,896
1994	2,025,587	260,166,650	1,471,057	321,806,401	201,284	25,161	46,886	273,331	975,815	416,433,324
1995	2,099,662	229,772,881	1,572,820	292,113,901	216,945	27,118	50,354	294,417	903,705	399,522,666
1996	1,759,240	238,086,903	1,625,031	309,598,073	217,250	27,155	52,013	296,418	951,281	427,760,688
1997	1,984,879	308,767,851	2,153,381	390,878,752	254,744	32,153	60,133	347,030	1,009,487	535,610,556
1998	2,120,556	325,298,688	2,767,813	416,052,074	272,341	34,366	64,785	371,492	1,009,480	565,828,861
1999	3,565,284	333,587,797	2,631,833	418,292,776	271,913	34,313	65,925	372,151	1,042,639	567,088,258
2000	4,499,454	349,214,814	2,689,457	441,103,885	270,942	34,191	67,102	372,235	1,031,052	589,872,898
2001	4,424,728	337,473,001	2,649,202	428,369,740	270,578	656,331	68,421	995,330	1,030,755	577,106,198
2002	4,477,646	373,431,213	3,315,412	476,129,861	270,052	656,265	69,702	996,019	1,031,803	626,297,063
2003	4,569,449	363,749,155	3,219,759	464,334,275	269,704	656,222	71,025	996,951	1,031,745	613,117,836
2004	4,571,283	368,388,377	3,279,440	469,884,874	270,189	656,282	72,541	999,012	1,032,032	619,679,295
2005	4,647,136	361,417,434	3,203,508	461,417,108	269,896	656,246	73,876	1,000,018	1,031,395	610,110,943
2006	4,720,279	364,066,424	3,221,327	464,818,248	269,637	656,213	75,453	1,001,303	1,031,487	613,730,675
2007	5,598,739	357,859,019	3,178,040	457,896,309	267,255	655,915	76,536	999,706	1,031,388	605,865,749
2008	5,753,698	378,277,007	3,369,346	483,008,732	272,553	656,578	79,407	1,008,538	1,031,500	634,560,415
2009	5,801,176	379,141,831	3,368,974	484,460,473	272,662	656,591	81,071	1,010,324	1,031,509	636,088,216
2010	5,767,308	378,165,587	3,366,127	483,063,885	272,761	656,604	82,731	1,012,096	1,031,506	634,729,864
2011	5,768,001	376,580,636	3,351,207	481,078,641	269,228	656,162	83,779	1,009,169	1,031,510	631,832,539
2012	5,779,982	377,353,558	3,356,688	482,093,444	269,325	656,174	85,673	1,011,172	1,031,517	632,979,980
2013	5,480,835	342,231,212	3,018,146	438,975,114	272,640	656,589	88,551	1,017,780	988,725	585,251,749
2014	5,261,452	324,184,869	2,861,494	416,137,312	269,658	656,216	89,961	1,015,835	962,205	559,638,051
2015	5,314,339	320,715,567	2,810,576	412,576,087	269,765	656,229	91,920	1,017,914	932,225	554,692,949
2016	5,165,860	313,312,876	2,755,400	402,641,108	269,890	656,245	94,128	1,020,263	915,231	543,917,219
2017	5,159,760	307,278,152	2,694,137	395,528,168	267,594	655,958	93,595	1,017,147	875,272	535,572,164
2018	5,065,615	299,468,981	2,625,176	385,796,418	267,718	655,973	93,622	1,017,313	799,793	525,310,636
2019	5,054,319	294,934,594	2,572,662	380,672,500	270,649	656,340	91,674	1,018,663	735,813	520,637,597
2020	4,931,407	283,921,765	2,483,367	366,898,749	270,814	656,360	79,763	1,006,937	715,345	506,332,053
2021	4,775,806	274,968,561	2,423,875	355,315,575	271,011	656,385	78,982	1,006,378	711,555	494,722,709
2022	4,740,132	267,976,337	2,382,603	347,384,160	270,708	656,347	77,524	1,004,579	710,911	486,661,814
2023	4,759,408	271,011,131	2,417,636	351,359,313	275,955	657,003	78,746	1,011,704	710,291	492,170,135
2024	4,699,235	263,421,293	2,365,012	342,017,817	267,732	655,975	76,828	1,000,535	709,822	480,648,980
2025	4,623,953	247,067,183	2,223,061	321,692,499	245,655	653,213	71,683	970,551	708,408	453,979,611
2026	4,595,119	239,114,086	2,156,956	311,978,958	235,212	651,907	69,249	956,368	707,960	441,025,706
2027	4,549,154	233,423,786	2,110,150	304,867,572	230,465	651,313	68,140	949,918	707,047	432,386,194
2028	4,551,207	229,504,246	2,073,509	300,195,541	224,560	650,574	66,763	941,897	705,961	426,052,222
2029	4,560,698	230,438,625	2,075,055	301,330,601	224,560	650,574	66,761	941,895	704,532	427,278,697
2030	4,484,897	224,074,448	2,021,312	293,499,580	224,560	650,574	66,760	941,894	703,037	419,007,027
2031	4,516,582	223,266,627	2,006,060	292,915,947	224,560	650,574	66,758	941,892	700,053	418,410,247
2032	4,515,592	223,361,616	2,000,564	293,090,195	224,560	650,574	66,757	941,891	700,431	418,666,987
2033	4,466,713	219,811,108	1,972,823	288,605,712	224,560	650,574	66,756	941,890	699,568	413,984,405
2034	4,501,839	220,530,864	1,971,484	289,643,964	224,560	650,574	66,755	941,889	695,919	414,938,583
2035	4,478,060	218,284,868	1,951,138	286,860,771	224,560	650,574	66,754	941,888	691,647	411,756,070
Total	215,703,138	15,854,660,479	128,358,830	20,174,418,015	11,587,993	23,496,955	3,843,453	38,928,401	51,404,529	27,074,806,455

TABLE B-24

Equivalent Unit Charge for Water Supply for Each Contractor (a

(Dollars per Acre-Foot)

	Transportation Charge					1		1
		Tra	nsportation C	harge			Water System	
Project Service Area and	Capital Cost Component	Minimum OMP&R Component	Off- Aqueduct Component	Variable OMP&R Component	Total	Delta Water Charge	Revenue Bond Surcharge	Total Equivalent Unit Charge
Water Supply Contractor	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Feather River Area								
City of Yuba City	0.00	0.00	0.00	0.00	0.00	46.88	5.95	52.83
County of Butte Plumas County Flood Control and Water Conservation District	0.00 17.63	0.00 2.29	0.00	0.00	0.00 19.92	14.58 21.70	1.85 7.06	16.43 48.68
Feather River Area	1.30	0.17	0.00	0.00	1.47	19.58	2.80	23.85
North Bay Area								
Napa County Flood Control and								
Water Conservation District Solano County Water Agency	115.59 85.72	37.53 30.59	4.35 4.29	8.26 5.28	165.73 125.88	15.75 24.07	30.25 24.01	211.73 173.96
North Bay Area	97.35	33.29	4.32	6.44	141.40	20.83	26.44	188.67
South Bay Area								
Alameda County Flood Control and Water Conservation District, Zone 7 Alameda County Water District Santa Clara Valley Water District	17.97 20.41 18.50	28.92 24.98 18.21	8.86 7.48 6.54	13.28 11.61 9.65	69.03 64.48 52.90	22.27 20.35 14.91	7.22 7.57 6.41	98.52 92.40 74.22
South Bay Area	18.75	21.07	7.07	10.56	57.45	17.01	6.74	81.20
San Joaquin Valley Area								
County of Kings Dudley Ridge Water District Empire West Side Irrigation District Kern County Water Agency Oak Flat Water District Tulare Lake Basin Water Storage District	4.28 5.15 2.74 9.01 1.95 5.25	3.84 4.56 3.66 9.14 2.14 4.68	3.61 3.09 2.37 4.72 1.92 2.98	4.59 4.05 3.78 5.66 2.67 4.33	16.32 16.85 12.55 28.53 8.68 17.24	18.25 15.67 16.29 18.55 15.11 16.71	3.36 3.25 2.74 4.56 2.39 3.40	37.93 35.77 31.58 51.64 26.18 37.35
San Joaquin Valley Area	8.35	8.38	4.43	5.41	26.57	18.19	4.35	49.11
Central Coastal Area								
San Luis Obispo County Flood Control and Water Conservation District Santa Barbara County Flood Control	338.93	65.56	15.41	49.12	469.02	44.56	88.51	602.09
and Water Conservation District	323.07	56.04	19.22	47.36	445.69	36.53	83.61	565.83
Central Coastal Area	328.01	59.01	18.03	47.91	452.96	39.03	85.14	577.13
Southern California Area								
Antelope Valley-East Kern Water Agency Castaic Lake Water Agency Coachella Valley Water District Crestline-Lake Arrowhead Water Agency Desert Water Agency Littlerock Creek Irrigation District Mojave Water Agency Palmdale Water District San Bernardino Valley Municipal Water District San Gabriel Valley Municipal Water District San Gorgonio Pass Water Agency Metropolitan Water District of Southern California Ventura County Flood Control District	37.69 49.82 41.46 95.55 42.12 43.80 89.49 48.88 137.66 85.98 365.31 70.95 97.94	33.14 36.71 70.81 35.87 37.58 69.16 42.25 95.69 65.60 156.76	27.33 23.08 49.65 31.94 44.98 30.20 21.53 36.50 27.06 37.81 20.18	46.10 12.60 28.26 54.51 28.44 49.00 67.00 53.87 33.51 27.20 42.22 20.96 37.69	144,26 122,21 154,68 252,81 151,41 160,58 247,18 181,50 293,92 216,59 584,47	27.06 24.09 19.29 34.88 19.37 30.50 39.45 36.85 42.95 30.48 48.35	12.65 15.24 12.58 27.78 12.75 14.58 26.88 16.63 39.10 24.89 95.44 21.00 29.13	183.97 161.54 186.55 315.47 183.53 205.66 313.51 234.98 375.97 271.96 728.26
Southern California Area	70.87	50.71	33.87	24.07	179.52	29.07	21.01	229.60
All Areas	42.86	30.43	18.98	15.15	107.42	23.59	13.47	144.48

a) Hypothetical charges, which, if assessed on all entitlement water delivered to date, all surplus water delivered prior to May 1, 1973, and all entitlement water now estimated to be delivered during the remainder of the project repayment period (Table B-5B), would provide a sum at the end of the period financially equivalent to all Transportation Charge and Delta Water Charge payments required under a water supply contract, considering interest at the Project Interest Rate, 4.620 per cent per annum.

TABLE B-25

### Equivalent Unit Transportation Costs of Water Delivered from or through Each Aqueduct Reach (a

(Dollars per Acre-Foot)

### **Equivalent Unit Transportation Costs of Water Delivered** from or through Each Aqueduct Reach (a

(Dollars per Acre-Foot)

			Unit Costs	of Reach (b	(Bollari	s per Acre	1 001,	Cumul	ative Unit C	osts from the	e Delta	
Aqueduct	Capital Costs	Water System Revenue Bond Surcharge (c	Minimum OMP&R	Off- Aqueduct Costs	Variable OMP&R	Total	Capital Costs	Water System Revenue Bond Surcharge (c	Minimum OMP&R	Off- Aqueduct Costs	Variable OMP&R	Total
Reach	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
North Bay Aqueduct 1 2 3A 3B	44.07 48.14 9.96 48.54	11.76 12.85 2.66 12.95	13.43 6.16 13.34 24.21	1.44 0.00 2.63 3.30	2.38 0.00 3.37 6.37	73.08 67.15 31.96 95.37	44.07 92.21 102.17 140.75	11.76 24.61 27.27 37.56	13.43 19.59 32.93 43.80	1.44 1.44 4.07 4.74	2.38 2.38 5.75 8.75	73.08 140.23 172.19 235.60
South Bay Aqueduct 1 2 4 5	6.64 0.63 2.10 4.45	1.77 0.17 0.56 1.19	13.62 1.55 2.59 2.09	5.84 0.00 0.00 0.00	7.82 0.00 0.00 0.00	35.69 2.35 5.25 7.73	8.49 9.12 11.22 15.67	2.26 2.43 2.99 4.18	16.33 17.88 20.47 22.56	7.79 7.79 7.79 7.79	11.45 11.45 11.45 11.45	46.32 48.67 53.92 61.65
6 7 8 9	0.25 1.96 2.66 5.51	0.07 0.52 0.71 1.47	0.23 0.40 0.46 2.44	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	0.55 2.88 3.83 9.42	15.92 17.88 20.54 26.05	4.25 4.77 5.48 6.95	22.79 23.19 23.65 26.09	7.79 7.79 7.79 7.79	11.45 11.45 11.45 11.45	62.20 65.08 68.91 78.33
California Aqueduct 1 2A 2B 3 4	1.85 1.17 0.59 0.52 0.83	0.49 0.31 0.16 0.14 0.22	2.71 0.54 0.23 0.19 1.31	1.95 0.00 0.00 0.00 0.91	3.63 0.00 0.00 0.00 1.58	10.63 2.02 0.98 0.85 4.85	1.85 3.02 3.61 4.13 4.96	0.49 0.80 0.96 1.10 1.32	2.71 3.25 3.48 3.67 4.98	1.95 1.95 1.95 1.95 2.86	3.63 3.63 3.63 3.63 5.21	10.63 12.65 13.63 14.48 19.33
5 6 7 8C 8D	0.64 0.17 0.74 0.02 0.37	0.17 0.05 0.20 0.01 0.10	0.26 0.13 0.32 0.06 0.25	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	1.07 0.35 1.26 0.09 0.72	5.60 5.77 6.51 6.53 6.90	1.49 1.54 1.74 1.75 1.85	5.24 5.37 5.69 5.75 6.00	2.86 2.86 2.86 2.86 2.86	5.21 5.21 5.21 5.21 5.21	20.40 20.75 22.01 22.10 22.82
9 10A 11B 12D 12E	0.30 0.32 0.47 0.45 0.31	0.08 0.09 0.13 0.12 0.08	0.23 0.28 0.20 0.18 0.30	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.61 0.69 0.80 0.75 0.69	7.20 7.52 7.99 8.44 8.75	1.93 2.02 2.15 2.27 2.35	6.23 6.51 6.71 6.89 7.19	2.86 2.86 2.86 2.86 2.86	5.21 5.21 5.21 5.21 5.21	23.43 24.12 24.92 25.67 26.36
13B 14A 14B 14C 15A	0.67 2.60 0.40 0.34 1.92	0.18 0.69 0.11 0.09 0.51	0.34 2.63 0.32 0.25 2.79	0.00 1.58 0.00 0.00 1.91	0.00 2.95 0.00 0.00 3.63	1.19 10.45 0.83 0.68 10.76	9.42 12.02 12.42 12.76 14.68	2.53 3.22 3.33 3.42 3.93	7.53 10.16 10.48 10.73 13.52	2.86 4.44 4.44 4.44 6.35	5.21 8.16 8.16 8.16 11.79	27.55 38.00 38.83 39.51 50.27
16A 17E 17F 18A 19	3.14 10.68 2.77 2.54 1.88	0.84 2.85 0.74 0.68 0.50	4.29 12.15 0.11 1.37 0.86	4.13 14.45 0.00 0.00 0.00	7.90 28.10 0.00 -2.76 0.00	20.30 68.23 3.62 1.83 3.24	17.82 28.50 31.27 33.81 35.69	4.77 7.62 8.36 9.04 9.54	17.81 29.96 30.07 31.44 32.30	10.48 24.93 24.93 24.93 24.93	19.69 47.79 47.79 45.03 45.03	70.57 138.80 142.42 144.25 147.49
19C 20A 20B 21 22A	0.00 1.52 1.80 0.90 0.91	0.00 0.41 0.48 0.24 0.24	0.00 1.21 0.92 0.63 0.34	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.00 3.14 3.20 1.77 1.49	35.69 37.21 39.01 39.91 40.82	9.54 9.95 10.43 10.67 10.91	32.30 33.51 34.43 35.06 35.40	24.93 24.93 24.93 24.93 24.93	45.03 45.03 45.03 45.03	147.49 150.63 153.83 155.60 157.09
22B 23 24 25 26A	9.23 4.21 4.86 3.66 3.53	2.46 1.12 1.30 0.98 0.94	9.10 0.88 1.75 0.11 5.56	4.74 0.00 0.00 0.00 0.00	8.83 -2.94 0.00 0.00 -24.80	34.36 3.27 7.91 4.75 (14.77)	50.05 54.26 59.12 62.78 66.31	13.37 14.49 15.79 16.77 17.71	44.50 45.38 47.13 47.24 52.80	29.67 29.67 29.67 29.67 29.67	53.86 50.92 50.92 50.92 26.12	191.45 194.72 202.63 207.38 192.61
28G 28H 28J	6.15 5.93 57.12	1.64 1.58 15.24	1.82 1.84 24.17	0.00 0.00 0.00	0.00 0.00 0.00	9.61 9.35 96.53	72.46 78.39 135.51	19.35 20.93 36.17	54.62 56.46 80.63	29.67 29.67 29.67	26.12 26.12 26.12	202.22 211.57 308.10
West Branch 29A 29F 29G 29H 29J 30	3.48 2.56 8.40 5.30 8.90 14.24	0.93 0.68 2.24 1.41 2.38 3.80	6.54 0.72 3.52 3.43 0.91 2.60	1.73 0.00 0.00 0.00 0.00 0.00	3.57 0.00 -12.15 0.00 -22.36 0.00	16.25 3.96 2.01 10.14 (10.17) 20.64	34.75 37.31 45.71 51.01 59.91 74.15	9.29 9.97 12.21 13.62 16.00 19.80	36.61 37.33 40.85 44.28 45.19 47.79	26.66 26.66 26.66 26.66 26.66 26.66	51.36 51.36 39.21 39.21 16.85 16.85	158.67 162.63 164.64 174.78 164.61 185.25
Coastal Branch 31A 33A 34 35	6.76 228.07 60.20 37.13	1.80 60.87 16.07 9.91	17.32 10.50 0.10 0.16	1.84 15.72 0.00 0.00	2.67 35.57 0.00 0.00	30.39 350.73 76.37 47.20	13.66 241.73 301.93 339.06	3.65 64.52 80.59 90.50	23.32 33.82 33.92 34.08	4.70 20.42 20.42 20.42	7.88 43.45 43.45 43.45	53.21 403.94 480.31 527.51

a) Representative of transportation unit costs only; does not include a unit cost of conservation. The Delta Water Rate should be added to these values in order to approximate unit costs at canal-side. Includes surplus water prior to May 1, 1973.

b) Hypothetical charges which, if assessed on all entitlement water delivered to date, all surplus water delivered prior to May 1, 1973, and all entitlement water now estimated to be delivered during the remainder of the Project repayment period(Table B-5B), would provide a sum at the end of the period financially equivalent to all Transportation Charges required under the water supply contract considering interest rate at the Project Interest Rate of 4.620 percent per annum.

c) The Water System Revenue Bond Surcharge equivalent unit rate is calculated by dividing the WSRB surcharge for 1998 (from 132-97, Table B-22) by the total Transportation Capital (132-97, B-15) and the Capital component of the Delta Water Charge (132-97, B-4 \* 11.59527812). This rate is multiplied by the equivalent rate for the Transportation Capital cost

TABLE B-26

### **Capital Costs of Each Aqueduct Reach to Be Reimbursed** through the Capital Cost Component of the East Branch Enlargement Transportation Charge (Dollars) Page 1 of

				(Dollars)	·			Page 1 of
					Aqueduct			
0 1 1	D 1 101	D / 10	D / 004	Mojave		D / 004	D 1.00D	D / 00D
Calendar	Reach 18A	Reach 19	Reach 20A	Reach 20B	Reach 21	Reach 22A	Reach 22B	Reach 23B
Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1952 1953	0	0	0	0	0	0	0	0
1954	0	Ō	0	0	0	0	0	Ō
1955	0	0	0	0	0	0	0	0
1956 1957	0	0	0	0 0	0	0 0	0	0
1958	0	0	0	0	0	0	0	0
1959 1960	0	0	0	0	0	0	0	0
1961	0	0	0	0	0	0	0	0
1962 1963	0	0	0	0 0	0	0 0	0 0	0
1964 1965	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0
1968 1969	0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
1970	0	0	0	0	0	0	0	0
1971 1972	0	0	0	0	0	0	0	0
1973	0	Ō	Ö	0	Ō	Ō	0	Ō
1974 1975	0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
1976	0	0	0	0	0	0	0	0
1977 1978	0	0	0	0 0	0	0 0	0 0	0 0
1979 1980	117,000 200,000	0	0	0	0	0	0	0 74,000
1981	,	0	0	0	0	0	0	
1982	135,000 1,503,000	0	0	0	0	0	0	385,000 1,586,000
1983 1984	2,260,000 735,000	0	0	0	0	0 0	0 796,000	2,965,000 1,380,000
1985	93,000	435,000	75,000	544,000	859,000	703,000	970,000	146,000
1986	784,000	4,477,000	3,144,000	2,234,000	1,569,000	1,203,000	1,808,000	34,000
1987 1988	11,000 1,000	951,000 125,000	1,076,000 1,681,000	666,000 1,730,000	399,000 2,024,000	47,000 40,000	16,421,000 13,326,000	43,000 70,000
1989 1990	0 1,000	206,000 577,000	2,089,000 903,000	2,174,000 735,000	2,510,000 928,000	61,000 194,000	11,242,000 20,131,000	229,000 887,000
1991	1,000	280,000	413,000	333,000	422,000	93,000	20,702,000	1,215,000
1992	0	40,000	41,000	39,000	35,000	13,000	9,599,000	3,719,000
1993 1994	0	19,000 2,000	16,000 3,000	19,000 2,000	12,000 4,000	6,000 3,000	1,300,000 803,000	19,654,000 3,173,000
1995	0	0	0	0	0	0	1,242,000	1,465,000
1996 1997	0	0	0	0	0	0	6,014,000	478,000 1,327,000
1998	0	Ō	0	0	0	Ō	391,000 13,000	0
1999 2000	0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
Total	5,841,000	7,112,000	9,441,000	8,476,000	8,762,000	2,363,000	104,758,000	38.830.000
, 0 (0)	5,5 ,000	.,,000	0, ,000	5, 5,000	5,. 52,000	_,555,555		30,000,000

## Capital Costs of Each Aqueduct Reach to Be Reimbursed through the Capital Cost Component of the East Branch Enlargement Transportation Charge

(Dollars)

Page 2 of 2

			Californ	nia Aqueduct (d	,			rage 2 01 2
	Mojave	e Division (co	ntinued)		Santa An	a Division		Grand
Calamdan	Reach 23C	Reach 24	Total	Reach 25	Reach 26A	Reach 26B	Total	Total
Calendar Year	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
1952 1953 1954 1955	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1956 1957 1958 1959 1960	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1961 1962 1963 1964 1965	0 0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1966 1967 1968 1969 1970	0 0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1971 1972 1973 1974 1975	0 0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1976 1977 1978 1979 1980	0 0 0 0 0	0 0 0 0	0 0 0 117,000 274,000	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 117,000 274,000
1981 1982 1983 1984 1985	0 0 0 0 0	0 0 0 0	520,000 3,089,000 5,225,000 2,911,000 3,825,000	0 0 0 0	0 0 0 0 528,000	0 0 0 0 89,000	0 0 0 0 0 617,000	520,000 3,089,000 5,225,000 2,911,000 4,442,000
1986 1987 1988 1989 1990	25,000 178,000 632,000 1,130,000 2,066,000	0 0 0 0	15,278,000 19,792,000 19,629,000 19,641,000 26,422,000	0 0 0 0	1,926,000 3,699,000 5,667,000 40,879,000 29,853,000	154,000 437,000 3,329,000 1,650,000 1,650,000	2,080,000 4,136,000 8,996,000 42,529,000 31,503,000	17,358,000 23,928,000 28,625,000 62,170,000 57,925,000
1991 1992 1993 1994 1995	4,980,000 11,920,000 16,303,000 7,081,000 5,350,000	0 0 0 0	28,439,000 25,406,000 37,329,000 11,071,000 8,057,000	0 0 0 0	26,027,000 15,317,000 4,878,000 3,151,000 2,110,000	999,000 299,000 0 0	27,026,000 15,616,000 4,878,000 3,151,000 2,110,000	55,465,000 41,022,000 42,207,000 14,222,000 10,167,000
1996 1997 1998 1999 2000	1,706,000 1,905,000 28,000 0	0 0 0 0	8,198,000 3,623,000 41,000 0	0 0 0 0	9,181,000 175,000 0 0	0 0 0 0	9,181,000 175,000 0 0	17,379,000 3,798,000 41,000 0
Total	53,304,000	0	238,887,000	0	143,391,000	8,607,000	151,998,000	390,885,000

TABLE B-27

Minimum OMP&R Costs of Each Aqueduct Reach to Be Reimbursed through Minimum OMP&R Component of the East Branch Enlargement Transportation Charge (a

(Dollars)

### Minimum OMP&R Costs of Each Aqueduct Reach to Be Reimbursed through Minimum OMP&R Component of the East Branch Enlargement Transportation Charge (a (Dollars)

Page 1 of 2

				(Dollars)	Aqueduct			Page 1 of 2
				Mojave				
Colored	Reach 18A	Reach 19	Reach 20A	Reach 20B	Reach 21	Reach 22A	Reach 22B	Reach 23B
Calendar Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1971 1972 1973 1974 1975	0 0 0 0	0 0 0 0						
1976 1977 1978 1979 1980	0 0 0 0	0 0 0 0						
1981 1982 1983 1984 1985	0 0 0 0	0 0 0 0						
1986 1987 1988 1989 1990	0 0 0 0	0 0 0 0						
1991 1992 1993 1994 1995	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0 1,216,000	0 0 0 0
1996 1997 1998 1999 2000	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	1,168,800 1,063,000 1,086,642 1,127,499 1,144,287	0 0 0 0
2001 2002 2003 2004 2005	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	1,144,287 1,144,287 1,144,287 1,144,287 1,144,287	0 0 0 0
2006 2007 2008 2009 2010	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	1,144,287 1,144,287 1,144,287 1,144,287 1,144,287	0 0 0 0
2011 2012 2013 2014 2015	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	1,144,287 1,144,287 1,144,287 1,144,287 1,144,287	0 0 0 0
2016 2017 2018 2019 2020	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	1,144,287 1,144,287 1,144,287 1,144,287 1,144,287	0 0 0 0
2021 2022 2023 2024 2025	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	1,144,287 1,144,287 1,144,287 1,144,287 1,144,287	0 0 0 0
2026 2027 2028 2029 2030	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	1,144,287 1,144,287 1,144,287 1,144,287 1,144,287	0 0 0 0
2031 2032 2033 2034 2035	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	1,144,287 1,144,287 1,144,287 1,144,287 1,144,287	0 0 0 0
Total	0	0	0	0	0	0	46,856,273	0

a) Presently, this table shows only the estimated incremental minimum OMP&R costs attributable to East Branch Enlargement. Under Article 49(e)(1), the contractors participating in the East Branch Enlargement will also share in the remaining minimum OMP&R costs of the affected reaches according to a formula to be developed by DWR in consultation with the affected contractors. Once the formula is developed, subsequent versions of this table will reflect the transfer of a share of the minimum OMP&R costs presently shown in Table B-11.

## Minimum OMP&R Costs of Each Aqueduct Reach to Be Reimbursed through Minimum OMP&R Component of the East Branch Enlargement Transportation Charge

(Dollars)

age 2 of 2

			Californi	a Aqueduct (c	ontinued)			
•	Mojave	e Division (cont	inued)		Santa Ana	Division		
Calendar	Reach 23C	Reach 24	Subtotal	Reach 25	Reach 26A (b	Reach 26B	Subtotal	Total
Year	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
1971 1972 1973 1974 1975	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1976 1977 1978 1979 1980	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1981 1982 1983 1984 1985	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0 0
1986 1987 1988 1989 1990	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0 0
1991 1992 1993 1994 1995	0 0 0 0 370,500	0 0 0 0	0 0 0 0 1,586,500	0 0 0 0	0 0 0 0 1,218,500	0 0 0 0	0 0 0 0 1,218,500	0 0 0 0 2,805,000
1996 1997 1998 1999 2000	554,500 266,800 272,800 282,900 287,100	0 0 0 0	1,723,300 1,329,800 1,359,442 1,410,399 1,431,387	0 0 0 0	1,435,900 1,387,800 1,459,106 1,555,042 1,578,301	0 0 0 0	1,435,900 1,387,800 1,459,106 1,555,042 1,578,301	3,159,200 2,717,600 2,818,548 2,965,441 3,009,688
2001 2002 2003 2004 2005	287,100 287,100 287,100 287,100 287,100	0 0 0 0	1,431,387 1,431,387 1,431,387 1,431,387 1,431,387	0 0 0 0	1,578,301 1,578,301 1,578,301 1,578,301 1,578,301	0 0 0 0	1,578,301 1,578,301 1,578,301 1,578,301 1,578,301	3,009,688 3,009,688 3,009,688 3,009,688 3,009,688
2006 2007 2008 2009 2010	287,100 287,100 287,100 287,100 287,100	0 0 0 0	1,431,387 1,431,387 1,431,387 1,431,387 1,431,387	0 0 0 0	1,578,301 1,578,301 1,578,301 1,578,301 1,578,301	0 0 0 0	1,578,301 1,578,301 1,578,301 1,578,301 1,578,301	3,009,688 3,009,688 3,009,688 3,009,688 3,009,688
2011 2012 2013 2014 2015	287,100 287,100 287,100 287,100 287,100	0 0 0 0	1,431,387 1,431,387 1,431,387 1,431,387 1,431,387	0 0 0 0	1,578,301 1,578,301 1,578,301 1,578,301 1,578,301	0 0 0 0	1,578,301 1,578,301 1,578,301 1,578,301 1,578,301	3,009,688 3,009,688 3,009,688 3,009,688 3,009,688
2016 2017 2018 2019 2020	287,100 287,100 287,100 287,100 287,100	0 0 0 0	1,431,387 1,431,387 1,431,387 1,431,387 1,431,387	0 0 0 0	1,578,301 1,578,301 1,578,301 1,578,301 1,578,301	0 0 0 0	1,578,301 1,578,301 1,578,301 1,578,301 1,578,301	3,009,688 3,009,688 3,009,688 3,009,688 3,009,688
2021 2022 2023 2024 2025	287,100 287,100 287,100 287,100 287,100	0 0 0 0	1,431,387 1,431,387 1,431,387 1,431,387 1,431,387	0 0 0 0	1,578,301 1,578,301 1,578,301 1,578,301 1,578,301	0 0 0 0	1,578,301 1,578,301 1,578,301 1,578,301 1,578,301	3,009,688 3,009,688 3,009,688 3,009,688 3,009,688
2026 2027 2028 2029 2030	287,100 287,100 287,100 287,100 287,100	0 0 0 0	1,431,387 1,431,387 1,431,387 1,431,387 1,431,387	0 0 0 0	1,578,301 1,578,301 1,578,301 1,578,301 1,578,301	0 0 0 0	1,578,301 1,578,301 1,578,301 1,578,301 1,578,301	3,009,688 3,009,688 3,009,688 3,009,688 3,009,688
2031 2032 2033 2034 2035	287,100 287,100 287,100 287,100 287,100	0 0 0 0	1,431,387 1,431,387 1,431,387 1,431,387 1,431,387	0 0 0 0	1,578,301 1,578,301 1,578,301 1,578,301 1,578,301	0 0 0 0	1,578,301 1,578,301 1,578,301 1,578,301 1,578,301	3,009,688 3,009,688 3,009,688 3,009,688 3,009,688
Total	12,083,100	0	58,939,373	0	63,875,184	0	63,875,184	122,814,557

b) Units 3 and 4 at Devil Canyon Powerplant were operational in 1993. These minimum OMP&R costs for Reach 26A will be revised to reflect operational date of those units.

TABLE B-28

### Capital Costs of East Branch Enlargement Transportation Facilities Allocated to Each Contractor

(Dollars)

# TABLE B-28 Capital Costs of East Branch Enlargement Transportation Facilities Allocated to Each Contractor

(Dollars)

			Sour	thern California	Area			
Calendar Year	Antelope Valley-East Kern Water Agency (1)	Coachella Valley Water District (2)	Desert Water Agency (3)	Mojave Water Agency (4)	Palmdale Water District (5)	San Bernardino Valley Municipal Water District (6)	Metropolitan Water District of Southern California (7)	Total (8)
1971 1972 1973 1974 1975	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1976 1977 1978 1979 1980	0 0 0 0	0 0 0 11,731 28,241	0 0 0 1,010 4,708	0 0 0 10,566 27,495	0 0 0 466 797	0 0 0 0	0 0 0 93,227 212,759	0 0 0 117,000 274,000
1981 1982 1983 1984 1985	0 0 0 0 49,675	56,134 326,180 554,658 306,514 447,266	16,676 76,872 138,964 68,842 65,773	61,271 337,913 582,070 314,468 347,262	538 5,988 9,004 2,928 4,514	0 0 0 0 21,614	385,381 2,342,047 3,940,304 2,218,248 3,505,896	520,000 3,089,000 5,225,000 2,911,000 4,442,000
1986 1987 1988 1989 1990	185,353 49,735 124,534 155,446 62,786	1,757,633 2,455,279 2,689,959 7,118,094 6,459,229	236,324 378,535 500,466 2,423,000 1,943,918	1,363,586 1,774,447 1,712,431 1,671,088 2,234,452	41,900 10,615 13,783 17,419 8,680	78,842 151,421 231,982 1,673,409 1,222,053	13,694,362 19,107,968 23,351,845 49,111,544 45,993,882	17,358,000 23,928,000 28,625,000 62,170,000 57,925,000
1991 1992 1993 1994 1995	28,686 2,911 1,205 273 0	6,265,822 4,826,764 4,991,658 1,726,376 1,230,156	1,875,066 1,610,921 1,819,579 631,816 430,618	2,168,712 1,359,335 2,629,767 478,543 299,367	4,024 471 212 27 0	1,065,433 627,012 199,684 128,988 86,374	44,057,257 32,594,586 32,564,895 11,255,977 8,120,485	55,465,000 41,022,000 42,207,000 14,222,000 10,167,000
1996 1997 1998 1999 2000	0 0 0 0	2,025,987 449,702 4,859 0 0	645,296 154,253 1,406 0	606,205 204,617 1,179 0	0 0 0 0	375,830 7,164 0 0	13,725,682 2,982,264 33,556 0 0	17,379,000 3,798,000 41,000 0
Total	660,604	43,732,242	13,024,043	18,184,774	121,366	5,869,806	309,292,165	390,885,000

### **Capital Cost Component of East Branch Enlargement Facilities** Transportation Charge for Each Contractor (Dollars)

	Southern California Area							
Calendar Year	Antelope Valley-East Kern Water Agency (1)	Coachella Valley Water District (2)		Mojave Water Agency (4)	Palmdale Water District (5)	San Bernardino Valley Municipal Water District (a (6)	Metropolitan Water District of Southern California (7)	Total (8)
1971 1972 1973 1974 1975	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1976 1977 1978 1979 1980	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1981 1982 1983 1984 1985	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1986 1987 1988 1989 1990	0 0 18,267 19,177 19,188	0 0 1,209,280 1,269,511 1,270,231	0 0 360,140 378,077 378,292	0 0 502,844 527,889 528,188	0 0 3,356 3,523 3,525	0 0 0 0	0 0 8,552,523 8,978,498 8,983,589	0 0 10,646,410 11,176,675 11,183,013
1991 1992 1993 1994 1995	19,188 40,403 41,980 41,769 43,714	1,270,248 2,674,695 2,779,078 2,765,121 2,893,865	378,297 796,560 827,646 823,490 861,832	528,195 1,112,193 1,155,598 1,149,795 1,203,329	3,525 7,423 7,713 7,674 8,031	0 0 0 0	8,983,711 18,916,526 19,654,765 19,556,061 20,466,588	11,183,164 23,547,800 24,466,780 24,343,910 25,477,359
1996 1997 1998 1999 2000	46,561 63,122 63,498 63,387 64,942	3,082,377 4,178,722 4,203,607 4,196,226 4,299,186	917,973 1,244,479 1,251,890 1,249,692 1,280,355	1,281,716 1,737,599 1,747,947 1,744,878 1,787,691	8,554 11,597 11,666 11,646 11,931	0 0 0 0	21,799,825 29,553,617 29,729,617 29,677,416 30,405,593	27,137,006 36,789,136 37,008,225 36,943,245 37,849,698
2001 2002 2003 2004 2005	64,915 64,441 64,390 61,347 61,314	4,297,416 4,265,991 4,262,608 4,061,158 4,058,984	1,279,828 1,270,469 1,269,461 1,209,467 1,208,820	1,786,955 1,773,888 1,772,481 1,688,714 1,687,810	11,926 11,839 11,830 11,271 11,265	0 0 0 0	30,393,076 30,170,823 30,146,894 28,722,157 28,706,786	37,834,116 37,557,451 37,527,664 35,754,114 35,734,979
2006 2007 2008 2009 2010	61,318 61,883 64,568 64,653 64,764	4,059,256 4,096,651 4,274,387 4,280,041 4,287,424	1,208,900 1,220,037 1,272,970 1,274,653 1,276,852	1,687,923 1,703,472 1,777,379 1,779,730 1,782,800	11,265 11,369 11,863 11,878 11,899	0 0 0 0	28,708,704 28,973,181 30,230,204 30,270,188 30,322,402	35,737,366 36,066,593 37,631,371 37,681,143 37,746,141
2011 2012 2013 2014 2015	61,100 61,207 65,426 62,240 62,348	4,044,811 4,051,946 4,331,244 4,120,334 4,127,457	1,204,598 1,206,724 1,289,902 1,227,090 1,229,212	1,681,916 1,684,883 1,801,021 1,713,320 1,716,282	11,225 11,245 12,020 11,435 11,455	0 0 0 0	28,606,544 28,657,011 30,632,318 29,140,680 29,191,056	35,610,194 35,673,016 38,131,931 36,275,099 36,337,810
2016 2017 2018 2019 2020	62,469 64,266 64,411 62,722 62,909	4,135,445 4,254,458 4,264,031 4,152,185 4,164,587	1,231,591 1,267,034 1,269,885 1,236,576 1,240,270	1,719,604 1,769,092 1,773,073 1,726,565 1,731,722	11,477 11,807 11,834 11,523 11,558	0 0 0 0	29,247,548 30,089,258 30,156,961 29,365,938 29,453,652	36,408,134 37,455,915 37,540,195 36,555,509 36,664,698
2021 2022 2023 2024 2025	63,132 61,585 49,605 49,809 38,651	4,179,377 4,076,935 3,283,856 3,297,386 2,558,707	1,244,674 1,214,166 977,976 982,006 762,017	1,737,872 1,695,274 1,365,495 1,371,122 1,063,963	11,599 11,315 9,114 9,151 7,101	0 0 0 0	29,558,256 28,833,744 23,224,763 23,320,454 18,096,215	36,794,910 35,893,019 28,910,809 29,029,928 22,526,654
2026 2027 2028 2029 2030	14,599 11,641 9,028 9,096 0	966,469 770,666 597,650 602,169 0	287,827 229,515 177,988 179,334 0	401,878 320,459 248,515 250,394 0	2,682 2,139 1,659 1,671 0	0 0 0 0	6,835,265 5,450,460 4,226,821 4,258,784 0	8,508,720 6,784,880 5,261,661 5,301,448 0
2031 2032 2033 2034 2035	0 0 0 0	0 0 0 0	0 0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
Total	2,115,033	140,015,776	41,698,565	58,221,464	388,579	0	990,248,472	1,232,687,889

a) Under Article 49(d)(4)(A) of its contract, San Bernardino Valley Municipal Water District elected to pay a portion of its allocated costs of East Branch Enlargement in advance rather than to participate in payment of Water System Revenue Bonds. This election made via a letter of agreement signed June 1, 1987. As of June 1996, \$6,347,938 has been received from the San Bernardino Valley Municipal Water District.

TABLE B-30

# Minimum OMP&R Component of East Branch Enlargement Facilities Transportation Charge for Each Contracator (Dollars)

	Southern California Area							
Calendar Year	Antelope Valley-East Kern Water Agency (1)	Coachella Valley Water District (2)	Desert Water Agency (3)	Mojave Water Agency (4)	Palmdale Water District (5)	San Bernardino Valley Municipal Water District (6)	Metropolitan Water District of Southern California (7)	Total (8)
1971 1972 1973 1974 1975	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1976 1977 1978 1979 1980	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1981 1982 1983 1984 1985	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1986 1987 1988 1989 1990	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1991 1992 1993 1994 1995	0 0 0 0	0 0 0 0 322,201	0 0 0 0 93,362	0 0 0 0 110,251	0 0 0 0	0 0 0 0 49,880	0 0 0 0 2,229,306	0 0 0 0 2,805,000
1996 1997 1998 1999 2000	0 0 0 0	368,045 314,880 326,963 344,388 349,527	113,173 96,378 100,705 106,700 108,294	105,971 96,379 98,522 102,227 103,749	0 0 0 0	58,780 56,811 59,729 63,657 64,609	2,513,231 2,153,152 2,232,629 2,348,469 2,383,509	3,159,200 2,717,600 2,818,548 2,965,441 3,009,688
2001 2002 2003 2004 2005	0 0 0 0	349,527 349,527 349,527 349,527 349,527	108,294 108,294 108,294 108,294 108,294	103,749 103,749 103,749 103,749 103,749	0 0 0 0	64,609 64,609 64,609 64,609	2,383,509 2,383,509 2,383,509 2,383,509 2,383,509	3,009,688 3,009,688 3,009,688 3,009,688 3,009,688
2006 2007 2008 2009 2010	0 0 0 0	349,527 349,527 349,527 349,527 349,527	108,294 108,294 108,294 108,294 108,294	103,749 103,749 103,749 103,749 103,749	0 0 0 0	64,609 64,609 64,609 64,609	2,383,509 2,383,509 2,383,509 2,383,509 2,383,509	3,009,688 3,009,688 3,009,688 3,009,688 3,009,688
2011 2012 2013 2014 2015	0 0 0 0	349,527 349,527 349,527 349,527 349,527	108,294 108,294 108,294 108,294 108,294	103,749 103,749 103,749 103,749 103,749	0 0 0 0	64,609 64,609 64,609 64,609	2,383,509 2,383,509 2,383,509 2,383,509 2,383,509	3,009,688 3,009,688 3,009,688 3,009,688 3,009,688
2016 2017 2018 2019 2020	0 0 0 0	349,527 349,527 349,527 349,527 349,527	108,294 108,294 108,294 108,294 108,294	103,749 103,749 103,749 103,749 103,749	0 0 0 0	64,609 64,609 64,609 64,609	2,383,509 2,383,509 2,383,509 2,383,509 2,383,509	3,009,688 3,009,688 3,009,688 3,009,688 3,009,688
2021 2022 2023 2024 2025	0 0 0 0	349,527 349,527 349,527 349,527 349,527	108,294 108,294 108,294 108,294 108,294	103,749 103,749 103,749 103,749 103,749	0 0 0 0	64,609 64,609 64,609 64,609	2,383,509 2,383,509 2,383,509 2,383,509 2,383,509	3,009,688 3,009,688 3,009,688 3,009,688 3,009,688
2026 2027 2028 2029 2030	0 0 0 0	349,527 349,527 349,527 349,527 349,527	108,294 108,294 108,294 108,294 108,294	103,749 103,749 103,749 103,749 103,749	0 0 0 0	64,609 64,609 64,609 64,609	2,383,509 2,383,509 2,383,509 2,383,509 2,383,509	3,009,688 3,009,688 3,009,688 3,009,688 3,009,688
2031 2032 2033 2034 2035	0 0 0 0	349,527 349,527 349,527 349,527 349,527	108,294 108,294 108,294 108,294 108,294	103,749 103,749 103,749 103,749 103,749	0 0 0 0	64,609 64,609 64,609 64,609 64,609	2,383,509 2,383,509 2,383,509 2,383,509 2,383,509	3,009,688 3,009,688 3,009,688 3,009,688 3,009,688
Total	0	14,259,449	4,408,902	4,248,314	0	2,614,781	97,283,111	122,814,557

# Total East Branch Enlargement Facilities Transportation Charge for Each Contractor (Dollars)

	Southern California Area							
Calendar	Antelope Valley- East Kern Water Agency	Coachella Valley Water District	Desert Water Agency	Mojave Water Agency	Palmdale Water District	San Bernardino Valley Municipal Water District	Metropolitan Water District of Southern California	Total
Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1971 1972 1973 1974 1975	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1976 1977 1978 1979 1980	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1981 1982 1983 1984 1985	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1986 1987 1988 1989 1990	0 0 18,267 19,177 19,188	0 0 1,209,280 1,269,511 1,270,231	0 0 360,140 378,077 378,292	0 0 502,844 527,889 528,188	0 0 3,356 3,523 3,525	0 0 0 0	0 0 8,552,523 8,978,498 8,983,589	0 0 10,646,410 11,176,675 11,183,013
1991 1992 1993 1994 1995	19,188 40,403 41,980 41,769 43,714	1,270,248 2,674,695 2,779,078 2,765,121 3,216,066	378,297 796,560 827,646 823,490 955,194	528,195 1,112,193 1,155,598 1,149,795 1,313,580	3,525 7,423 7,713 7,674 8,031	0 0 0 0 49,880	8,983,711 18,916,526 19,654,765 19,556,061 22,695,894	11,183,164 23,547,800 24,466,780 24,343,910 28,282,359
1996 1997 1998 1999 2000	46,561 63,122 63,498 63,387 64,942	3,450,422 4,493,602 4,530,570 4,540,614 4,648,713	1,031,146 1,340,857 1,352,595 1,356,392 1,388,649	1,387,687 1,833,978 1,846,469 1,847,105 1,891,440	8,554 11,597 11,666 11,646 11,931	58,780 56,811 59,729 63,657 64,609	24,313,056 31,706,769 31,962,246 32,025,885 32,789,102	30,296,206 39,506,736 39,826,773 39,908,686 40,859,386
2001 2002 2003 2004 2005	64,915 64,441 64,390 61,347 61,314	4,646,943 4,615,518 4,612,135 4,410,685 4,408,511	1,388,122 1,378,763 1,377,755 1,317,761 1,317,114	1,890,704 1,877,637 1,876,230 1,792,463 1,791,559	11,926 11,839 11,830 11,271 11,265	64,609 64,609 64,609 64,609 64,609	32,776,585 32,554,332 32,530,403 31,105,666 31,090,295	40,843,804 40,567,139 40,537,352 38,763,802 38,744,667
2006 2007 2008 2009 2010	61,318 61,883 64,568 64,653 64,764	4,408,783 4,446,178 4,623,914 4,629,568 4,636,951	1,317,194 1,328,331 1,381,264 1,382,947 1,385,146	1,791,672 1,807,221 1,881,128 1,883,479 1,886,549	11,265 11,369 11,863 11,878 11,899	64,609 64,609 64,609 64,609	31,092,213 31,356,690 32,613,713 32,653,697 32,705,911	38,747,054 39,076,281 40,641,059 40,690,831 40,755,829
2011 2012 2013 2014 2015	61,100 61,207 65,426 62,240 62,348	4,394,338 4,401,473 4,680,771 4,469,861 4,476,984	1,312,892 1,315,018 1,398,196 1,335,384 1,337,506	1,785,665 1,788,632 1,904,770 1,817,069 1,820,031	11,225 11,245 12,020 11,435 11,455	64,609 64,609 64,609 64,609 64,609	30,990,053 31,040,520 33,015,827 31,524,189 31,574,565	38,619,882 38,682,704 41,141,619 39,284,787 39,347,498
2016 2017 2018 2019 2020	62,469 64,266 64,411 62,722 62,909	4,484,972 4,603,985 4,613,558 4,501,712 4,514,114	1,339,885 1,375,328 1,378,179 1,344,870 1,348,564	1,823,353 1,872,841 1,876,822 1,830,314 1,835,471	11,477 11,807 11,834 11,523 11,558	64,609 64,609 64,609 64,609 64,609	31,631,057 32,472,767 32,540,470 31,749,447 31,837,161	39,417,822 40,465,603 40,549,883 39,565,197 39,674,386
2021 2022 2023 2024 2025	63,132 61,585 49,605 49,809 38,651	4,528,904 4,426,462 3,633,383 3,646,913 2,908,234	1,352,968 1,322,460 1,086,270 1,090,300 870,311	1,841,621 1,799,023 1,469,244 1,474,871 1,167,712	11,599 11,315 9,114 9,151 7,101	64,609 64,609 64,609 64,609	31,941,765 31,217,253 25,608,272 25,703,963 20,479,724	39,804,598 38,902,707 31,920,497 32,039,616 25,536,342
2026 2027 2028 2029 2030	14,599 11,641 9,028 9,096 0	1,315,996 1,120,193 947,177 951,696 349,527	396,121 337,809 286,282 287,628 108,294	505,627 424,208 352,264 354,143 103,749	2,682 2,139 1,659 1,671	64,609 64,609 64,609 64,609	9,218,774 7,833,969 6,610,330 6,642,293 2,383,509	11,518,408 9,794,568 8,271,349 8,311,136 3,009,688
2031 2032 2033 2034 2035	0 0 0 0	349,527 349,527 349,527 349,527 349,527	108,294 108,294 108,294 108,294 108,294	103,749 103,749 103,749 103,749 103,749	0 0 0 0 0	64,609 64,609 64,609 64,609 64,609	2,383,509 2,383,509 2,383,509 2,383,509 2,383,509	3,009,688 3,009,688 3,009,688 3,009,688 3,009,688
Total	2,115,033	154,275,225	46,107,467	62,469,778	388,579	2,614,781	1,087,531,583	1,355,502,446